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Federal Statistics 1980

Prepared By

*The Staff of the Office of Federal Statistical Policy and Standards**

Introduction

This is the fourth in a series of annual reports on the status of Federal statistics, which have been prepared by the Office of Federal Statistical Policy and Standards (OFSPS) since it was established in the Department of Commerce in October 1977. The Office is the successor to the Statistical Policy Division of the Office of Management and Budget (OMB) which previously was responsible for establishing governmentwide statistical policies and standards. This will be the last annual report prepared prior to transfer of the statistical policy function to the Office of Management and Budget as required by the Paperwork Reduction Act of 1980 (Public Law 96-511).

The report is intended to highlight important developments in Federal statistics in 1980, to draw attention to activities planned for fiscal year 1981 as a result of Executive recommendations and congressional actions, and to provide a general overview of Federal statistical programs. It is anticipated that most readers will find many of the crosscutting issues sections as well as a number of sections devoted to subject areas of interest.

The reference period for this report has been changed from the calendar year used in prior reports to the fiscal year to permit use of materials prepared for the newly instituted multiyear planning and budgeting process. Unless otherwise specified, dates cited in the report refer to fiscal years.

Since Federal statistics are the product of a large number of agencies and a widely diverse set of activities, especially in the major statistical agencies, a report of this type will describe only selected events. Nevertheless, the report is intended to give a general sense of important developments affecting Federal statistics and to draw attention to individual issues and events which are expected to be of future signifiance. The report is not, however, an evaluation of the quality of statistical programs or an assessment of the adequacy of changes relative to needs.

The overall outline of this report is as follows:

General Issues
Selected Crosscutting Issues
- Statistical Policy Coordination Committee
- User Access to Federal Data
- Decision Information Display System
- Planning and Budget Process for Federal Statistical Information Programs
- Use of Statistics in Federal Fund Allocations
- Mid-Decade Statistical Program
- 1980 Census of Population and Housing
- Federal Committee on Statistical Methodology
- Redesign of Household Surveys
- Long-Term Care
- Information Collection Budget and Reports Clearance
- Civil Service Reform
- International Statistics

Statistical Standards
- Population Projections for Use In Federal Fund Allocations
- Industrial Directory

*Milo B. Sunderhauf served as general editor.

Classification of Statistics on Segments of Business
Occupational Classification
Industrial Classification
Principal Statistical Programs
Overview
Agricultural Statistics
Criminal Justice Statistics
Education Statistics
Energy Statistics
Environmental Statistics
General Economic and Financial Statistics
Health Statistics
Housing and Construction Statistics
Income Maintenance Statistics
International Economic Statistics
Labor Statistics
Natural Resource Statistics
Population Statistics
Prices and Price Indexes
Production and Distribution Statistics
Transportation Statistics
Fiscal Year 1982 Budget Requests for Statistical Agencies
Summary of OFSPS Activities
Selected References

General Issues

In the Introduction to *Federal Statistics 1979,* it was noted that the Paperwork Reduction Act of 1980 had been introduced in the House of Representatives by Congressman Brooks. This legislation, which was developed as a followup to recommendations of the Commission on Federal Paperwork, was signed into law in December 1980. At the time this report is being published, final arrangements are being completed for the transfer of the Office of Federal Statistical Policy and Standards into the Office of Information and Regulatory Affairs (OIRA) which was established in the Office of Management and Budget by Public Law 96-511, the Paperwork Reduction Act of 1980.

As noted in the balance of this report, there have been a number of important improvements in Federal statistics during fiscal year 1980 and in the first few months of 1981. In an environment in which overall governmental activities are being questioned and a number of activities are being reduced, the Federal statistical system is also under considerable pressure to achieve greater levels of efficiency and to increase the usefulness of statistics for policy purposes. The organization of the Office of Information and Regulatory Affairs holds promise for stronger and more effective coordination of statistical programs with other information activities of the Federal Government. Concurrently, a redirection of resources will require more selectivity in the choice of statistical policy initiatives. Emphasis will be given to consideration of the impact on statistics of President Reagan's programs to reduce governmental regulation. In some important cases, the Federal statistical system depends on regulatory activities as a source of information. Therefore, it is appropriate that the statistical policy unit of OIRA work closely with those involved in examining regulations to assure that adequate information is collected to understand social and economic issues without creating undue burden on respondents.

The newly established Office of Information and Regulatory Affairs will have responsibility for reports clearance and paperwork control, statistics, privacy, automatic data processing, telecommunications, records management, and analysis of rules and regulations, especially as they are associated with recordkeeping requirements. Details of the office organization and relationships will be published in a forthcoming issue of *Statistical Reporter.*

From a general perspective, it should also be noted that current programs for improving data access are moving forward in an impressive manner. These include developing better documentation for machine-readable data files, special efforts to assist in disseminating the 1980 census, and the development of specific approaches such as the Decision Information Display System, described in a separate section of this report. Improved access to data provided by the Federal statistical system and dissemination of information about available statistical products will decrease the frequency of near duplicative special-purpose data collections.

Improvements in efficiency can also be obtained through greater use of administrative record systems to meet statistical needs. As noted later in this report, a specific initiative is included in the 1981 and 1982 budgets for improving the capability of the Bureau of Census to use administrative records as a substitute for the mid-decade census of population which was authorized in 1976. Statistical use of administrative records brings responsibility to ensure that such records can be accessed in a man-

ner that avoids violation of privacy or confidentiality while, at the same time, yielding useful information which would otherwise have to be obtained by duplicate requests to the public. As pressure grows to reduce reporting burden and to increase the efficiency of statistical programs, it is evident that increased use of administrative records will characterize the statistical system. Therefore, it is noteworthy to draw attention to the most recent report of the Federal Committee on Statistical Methodology. This report which is entitled *Statistical Policy Working Paper 6—Report on Statistical Uses of Administrative Records* is an important first step in defining existing practice and needed improvements in the use of administrative record systems for statistical purposes.

Selected Crosscutting Issues

STATISTICAL POLICY COORDINATION COMMITTEE

The Statistical Policy Coordination Committee (SPCC) was established by Executive Order No. 12013 dated October 7, 1977. The Committee's mandate is broad, encompassing the improvement, coordination, and development of statistical policy. Under this mandate the SPCC continued over the past year to review and make recommendations on a number of issues of importance to the Federal statistical system. Some of these issues carried over from the previous year, while others represented new concerns. Much of the work of the SPCC is undertaken by task forces and subcommittees that develop proposals and recommendations for consideration by the full SPCC. The more important SPCC activities are discussed in separate crosscutting sections of this report.

During 1980 the SPCC approved the substance of recommendations of the President's Reorganization Project for the Federal Statistical System relating to procedures for planning statistical budgets. The approach which was adopted provides for a multiyear planning procedure to serve as a key ingredient in more effective coordination of Federal statistical programs. The procedure is expected to improve the relevancy of Federal data to national policy decisions and to make more efficient use of data already produced.

As in 1979, the SPCC reviewed priorities for the President's budget that were recommended by the SPCC Subcommittee on Social Statistics and the Subcommittee on Economic Statistics of the Economic Policy Group. Planning guidelines were issued to statistical agencies on data access, small area data initiatives, data improvements for the GNP accounts, household economic and program participation statistics, and redesign of household surveys.

The SPCC Task Force on Civil Service Reform is charged with making recommendations concerning the impact of the Civil Service Reform Act on the Federal statistical system. The activities of the task force during 1980 included the development of qualification requirements and evaluation factors for statistical positions and the formulation of recommendations concerning executive development programs for statisticians.

The SPCC Task Force on Population Projections was established to review a proposal to establish standardized State population projections for use in Federal fund allocation programs. The fundamental issues examined by the task force were: (1) whether funds for capital improvement programs should be distributed based on projections; (2) whether it is appropriate to continue the current practice which allows agencies to use different, frequently contradictory, projection series in funding decisions; and (3) whether a standardized series should be developed in which each level (local, State, and Federal) would sum to the next higher level.

The SPCC Policy and Technical Committees on Small Business Statistics were established in response to a request that the SPCC take the initiative in the development of a small business data base. The data base will provide industry profiles by size of firm for analyzing trends in the relationship and sensitivity of small business to the rest of the economy.

The SPCC reviewed a number of other issues of central importance to the Federal statistical system. In the area of data access the SPCC authorized the development and publication of the first version of a directory of machine readable files which will include information on 800 files. The SPCC also reviewed and concurred on the implementation of technical revisions to the poverty definition and the dissemination of information concerning the probable impact of this change on Federal program allocations following the 1980 census. Finally, the SPCC was used as a forum for apprising senior Federal statisticians on a variety of relevant issues.

USER ACCESS TO FEDERAL DATA

As noted in the discussion of general issues, substantial steps were taken during this year by the Federal statistical system to improve its performance in the area of data access and user services. OFSPS formed the Interagency Committee on Data Access and Use which initially comprised twelve Federal agencies. The committee met regularly beginning in April and was actively involved in all of the matters detailed below. The purpose and membership of the Committee were described in the October 1980 issue of *Statistical Reporter*.

As a follow-on to the Airlie House conference of March 1978 on Cataloging and Information Services for Machine-Readable Data Files, a task force of Federal agency representatives agreed to prepare sample descriptions of their machine-readable data files (MRDF's). Some 200 completed forms were submitted to the National Technical Information Service (NTIS) which had volunteered to collaborate with OFSPS in the production of a *Directory of Federal Statistical Data Files*. NTIS produced a preliminary version of the *Directory* in May 1980 for agency review and comment. The Interagency Committee on Data Access and Use reviewed the preliminary version and recommended publication in final form.

The *Directory*, which is to be issued in March 1981 as a joint project of OFSPS and NTIS, contains entries for approximately 650 statistical MRDF's. Entries consist of abstracts in standardized format. The abstracts include a bibliographic citation, general description and subject matter coverage, geographic and time coverage, technical description, reference materials, related printed reports and files, agency contacts, and information on availability.

To establish standard descriptions for MRDF's as a basis for regular publication of the *Directory*, the committee drafted a Statistical Policy Directive on "Standards for Abstracts of Public Use Statistical Machine-Readable Data Files." As technical backup, a subcommittee drafted a Technical Paper entitled "Procedures for Preparation of Abstracts of Public Use Statistical Machine-Readable Data Files." The Statistical Policy Directive and the Technical Paper will be published by OFSPS during 1981.

To improve the availability of general information concerning the Federal statistical system, a new plan was devised for future editions of the *Federal Statistical Directory*, which is a systemwide telephone book. Beginning in 1981, OFSPS will structure the *Directory* to be responsive to three types of users. Level 1 will provide basic point-of-entry information concerning the statistical programs of agencies, that is, a single contact for information and publications. (Level 1 was published in the October 1980 issue of *Statistical Reporter*.) Level II is to be a subject-matter listing and Level III will consist of the organizational listing followed in previous editions of the *Directory*.

OFSPS also undertook an informal survey of agency practices and policies in the general area of data access and user services. By the end of the year, a paper entitled "A Federal Policy for Improving Data Access and User Services" had been drafted which included the results of the survey of agencies. The policy statement is published in the March 1981 issue of *Statistical Reporter*.

DECISION INFORMATION DISPLAY SYSTEM

The Decision Information Display System (DIDS) provides a method of quickly obtaining statistical data in color graphics superimposed on maps of the United States and other countries. It provides analysts and policymakers with a broad overview for comparing economic and social trends among countries, States, and local areas.

The system is an attempt to advance the use of statistics in graphic form by decisionmakers. The maps are rapidly displayed on television screens, with color coding displaying a wide range of cross-classifications of income, demographic characteristics, energy usage, economic series and other variables. Customized maps are easily created by the user at the computer terminal.

DIDS was developed under a White House initiative and through the joint efforts of the National Aeronautics and Space Administration (NASA) and the Census Bureau. In June 1978, a pilot system was demonstrated at the White House and Capitol building which displayed socioeconomic and demographic data by a computer-driven color graphics interactive terminal.

During the first year of the DIDS development program which was reported on in *Federal Statistics 1979*, users were able to explore regional differences in statistics such as infant mortality rates, purchase of imported cars, women in the work

force, hospital beds per capita, Vietnam veteran's residence preference, population growth or loss rates, value of exports, unemployment rates, ethnic distribution and fresh water usage rates.

The most significant accomplishments in 1980 were the initiation of a full-time "host" system serving as a hub for remote terminals and the development of moderately low cost remote terminal systems. The responsibility for the supporting hardware and programming was moved from NASA to OFSPS in September 1980. A world map with zoom capability was added and the number of data elements increased by 1,000 to a total of over 5,000. Further developmental work which will lead to a fully operational system is planned for 1981. The planned work includes validation and documentation of the statistical series included in the data base and protection of the data base from unauthorized modification.

Federal interest in the program continued to grow, resulting in six additional Federal agencies joining the program in 1980. In addition, an active outreach program has been extended to other levels of government and preliminary discussions have been held with the private sector firms concerning their appropriate role with respect to DIDS. Efforts will focus during 1981 on the development and installation of an "operational" data base, full-time operation of the host system and the common-access remote terminals, and development of an interagency network.

The DIDS program is under the general guidance of a Policy Council. Program coordination is conducted by a Steering Committee representing all the participating agencies and several subcommittees and working groups. The full-time program manager is organizationally located in OFSPS. Access to the system is provided by a pilot remote terminal system located in the Old Executive Office Building.

Further information about the system can be found in the "Decision Information Display System, Annual Report for Fiscal Year 1980" which is available from OFSPS, and in system description and user manuals which will be published in 1981.

PLANNING AND BUDGET PROCESS FOR FEDERAL STATISTICAL INFORMATION PROGRAMS

A major activity led by OFSPS during 1980 was the development of an improved process for integrated planning of Federal statistical programs. Strengthening the role and authority of the central statistical policy office with respect to the development of statistical program priorities and budgets was one of the prinicpal recommendations made by the President's Reorganization Project for the Federal statistical system. An interagency task force under the SPCC developed a detailed procedure following the basic guidelines of the Reorganization Project report. The SPCC and the Director of OMB endorsed the specific procedure in 1980.

The President's Reorganization Project identified several problems that exist in planning statistical programs because statistical work is decentralized. Chief among the problems are failure to focus on national priorities, inadequate long-term planning, and insufficient communication among the important actors in development of plans and budgets. The result of these problems is fragmented and ad-hoc decisionmaking. The final report of the Project contained the following explanation:

> "Strong coordination of budget development for statistical programs is necessary to ensure that national, as opposed to separate departmental and agency, statistical priorities are identified and prevail within a decentralized statistical system. Historically, United States statistics have generally developed from the bottom, a program at a time, to support the mission of an agency. The initial design rarely anticipates multiple uses and the Department or agency normally resists spending its budget to serve the needs of users external to that mission. The growing incidence of complex, crosscutting issues assures the development of multiple use despite the Department's attitude. Many external decision uses come to have high, even dominant value. As a result, the uses of the output of most statistical agencies have, over time, extended well beyond the mission of their Departments. Yet there are only weak (or nonexistent) mechanisms to ensure that the priority data needs of this larger constituency are given adequate weight by the policy Departments in which most statistical agencies are located. This is a reality that requires stronger central policy coordination if the statistics used for multiple purposes are to have acceptable levels of relevance and accuracy, or indeed, if they are to exist at all in some cases."

The recommendation was to achieve a better balance among three essential elements in the planning and budget process as it affects statistical programs. These elements are: (a) strengthening the central coordination of statistical planning and budget priority setting while (b) recognizing the authority of OMB in resource decisions and (c) preserving the decentralized role of program agencies in meeting their own statistical needs. Thus, the need was to develop stronger statistical policy coordination which could provide a system through which agencies can plan more effectively, clearly establish priorities among proposals, and fully address all levels of data needs for decisions on policy and crosscutting issues in the formulation of the Federal budget.

The improved planning and budget development procedure for statistical information programs is being implemented during 1981 in planning for the budget for fiscal year 1983. There are several major features that are designed to meet three objectives specified by the President's Reorganization Project. These objectives are to:

1. Provide Congress, the President, and his advisors with more coherent and relevant information by developing and implementing national level priorities;
2. Use existing coordinating mechanisms that have worked well in the past but have not been sufficiently systematic; and
3. Facilitate, rather than disrupt, the existing mechanisms through which OMB develops the budget of the United States.

The improved procedure encompasses four significant aspects. The first consists of the development of statistical policy guidelines for planning Federal statistical programs. Guidelines for the initial planning cycle in preparation for FY 1983 were approved by the SPCC in October 1980 and given to agencies as a top-down view of priority needs for improving the statistical system. The guidelines included (a) improving data access and user services programs, (b) improving the statistical uses of large administrative data sets such as the Continuous Work History Sample and the Statistics of Income, (c) developing plans for implementation of the 1982 revision of the Standard Industrial Classification, (d) developing alternatives to a mid-decade census which could meet intercensal needs for small area data, and (e) improving statistical data used in distributing Federal domestic assistance payments.

Second, agencies with statistical programs are to provide multiyear planning information to OFSPS covering a 5-year period. The initial submission of this information to OFSPS covered the years 1982-86 and is required of the 12 largest statistical agencies. The information for 1982 is an update of plans based on final decisions made in the President's budget for 1982. The information for 1983-86 will be the basis for determining the adequacy of plans for meeting national level needs and priorities. The plans will be used for discussion with data users, to identify needs for joint agency planning or statistical policy decisions, and to help OMB budget examiners gain a systemwide and longer-term framework for budget decisions.

The third feature involves the development of an inventory of statistical information activities in the Federal Government to provide a more adequate framework for planning. Such an inventory is needed especially to delineate statistical activities that have developed as part of administrative and regulatory programs and to ensure that they are considered in the context of statistical policy and coordination issues. The inventory would be maintained through information submitted to OMB in agency fiscal and information collection budget requests and to OFSPS in multiyear plans for statistical programs.

Finally, the new procedures will continue use of agency budget information normally transmitted to OMB in September for the President's budget submitted to Congress the following January. Budget information is submitted in a variety of formats. Some agencies submit decision units for statistical programs. Others submit supplemental information covering statistical activities if their decision units cover programs containing statistical activities. The budget information, and knowledge gained from review and discussion of multiyear plans, is used by OFSPS in making recommendations to the OMB budget examiners.

USE OF STATISTICS IN FEDERAL FUND ALLOCATIONS

During 1980 OFSPS investigated the use of Federal statistics in allocating funds and determining program eligibility. The primary purpose of the study was to rank statistical series according to their association with large Federal obligations. These series could then be targeted, through the statistical planning and budget process, for improvements in accuracy and documentation.

The study found that a variety of factors from the Decennial Census of Population and Housing are associated with the largest amount of domestic assistance obligations. Census population counts also impact assistance payments through their use as denominators and control totals in other statistical series frequently used in allocations. Chief among these series are unemployment data published by the Bureau of Labor Statistics, personal income statistics published by the Bureau of Economic Analysis and Census estimates of population and money income. These series along with the Consumer Price Index, the Annual Housing Survey and series published in the *Social Security Bulletin* were associated with the largest dollar allocations. In addition, 190 agencies are responsible for other series currently used for allocation.

A secondary purpose of the OFSPS investigation was to identify systemwide improvements that would lead to better public understanding of the complex relationships between data and the computation of assistance payments. Interest in the allocation of benefits is especially great as various groups attempt to anticipate the import of budget proposals. States and localities have claimed in court that flaws in statistics cause a loss in the amount of funds they are entitled to receive. There is also increasing pressure for more efficient management of Federal programs.

The OFSPS study found that Federal assistance agencies do not record their formula procedures in a systematic way. In several cases documentation is virtually nonexistent, and there is no central record of these formulas. Consequently, questions on who gets how much money and why cannot be answered except on an ad hoc basis. This situation poses great difficulty for State and local governments as they attempt to forecast their own budgets. When Federal agencies cannot explain formula operation the suspicion of mismanagement and inefficiency arises.

As a result of this study, OFSPS will solicit recommendations on standard formula documentation and request OMB to consider developing the findings into a management circular.

MID-DECADE STATISTICAL PROGRAM

On October 16, 1976, legislation requiring a mid-decade "census" of population and housing, beginning in 1985, was incorporated into Title 13, U.S. Code. In approving the mid-decade legislation, the Congress intentionally avoided establishing by law the scope and content of the program.

Early in 1980 a budget decision was reached making 1980 the last year for which funding would be provided to plan for a mid-decade census. Therefore, efforts were initiated to develop an alternative program which would be responsive to the major data needs the mid-decade census had been expected to meet. Planning was also directed towards obtaining funding for a small area data improvement program for 1982.

The proposed State and local data improvement program comprised three major parts: (1) local data improvements for use in Federal program administration as well as for more general use by business and government, (2) improved State and local data for analytical, program evaluation, and planning use by the public and private sectors, and (3) improved access to and utility of State and local area data. Specific components of the proposed program included expanded use of administrative records to improve small area estimates of population and other socioeconomic variables, a large-scale survey in 1985, an expanded Federal/State cooperative program, improvements to income and employment estimates, and development of socioeconomic profiles of counties. The program proposal was submitted with the Department of Commerce's FY 1982 budget to OMB.

In the budget review process, attention was focused on those program components which would not impose a high cost and which most nearly addressed the data needs expressed for a mid-decade census. As a result, the Administration's budget for FY 1982 provides funding for a program of expanded use of administrative records by the Bureau of the Census and the Bureau of Economic Analysis (BEA). The Census Bureau component of this initiative would expand the use of records such as tax returns, medicare enrollments, and social security data to provide more detailed population estimates for years between censuses. Work would also be undertaken to develop and improve existing techniques for estimating major characteristics of the population for small areas. The BEA component of the program would be aimed at improving the accuracy, timeliness, and frequency of BEA's State and local personal income estimates. New and updated sources would be used to improve these estimates.

The remaining components of the program were not included in the proposed 1982 budget. Efforts are being made by OFSPS and the Bureau of the Census to ensure that data needs for the 1980's which were expressed in planning for a mid-decade census are met as well as possible. A summary of expressed data needs has been compiled; this summary is being used as a basis of discussion in a variety of forums, such as the Interagency Committee on Labor Statistics. Appropriate agencies have been reminded of the need to revise plans and programs which had assumed data from a mid-decade survey would be forthcoming.

1980 CENSUS OF POPULATION AND HOUSING

The Twentieth Decennial Census of Population and Housing was conducted during 1980. In addition to the apportionment among the States of seats in the House of Representatives, census data are used for the distribution of billions of dollars in Federal funds to State and local governments and for the distribution of additional billions of dollars in State funds.

Following the first stages of the enumeration, the Census Bureau undertook a major campaign enlisting the help of top local government officials in over 39,000 communities to improve the accuracy of the 1980 population and housing census results. This local review program was designed to provide a post-census review of preliminary census totals for each community before they were made public and while census workers were still in the field.

Notwithstanding extensive efforts to improve coverage of the population in the 1980 census, the Census Bureau anticipated significant public concern over the effects of an undercount. Consequently, the Census Bureau conducted a Conference on the Census Undercount in February 1980 to obtain the views of persons and groups outside the Census Bureau regarding the feasibility of measuring and adjusting for any census undercount at different geographic levels and for different population characteristics. The agenda of the conference covered methods of measuring the undercount for subnational areas, the timing of the adjustment for undercounts, measuring and adjusting for factors other than total population, the use of adjusted figures in Federal programs, the impact of adjustments on the Federal statistical system, political and legal issues in making adjustments, the effects of adjustments on equity in the distribution of Federal funds, and decision theory and theoretical aspects of adjustment.

On December 31, 1980, the final total population count of 226,504,825 for the 50 States and the District of Columbia was certified to the President. The number of seats that each State will receive in the House of Representatives for the decade of the 1980's, based on the 1980 count, was computed by the Census Bureau and delivered with the final count. Under the formula used for this apportionment, 17 seats changed States since the apportionment following the 1970 Census. These changes represent major shifts in the population to the South and West during the past decade. The April 1, 1980, census count of 226.5 million was more than 4 million larger than the Census Bureau's estimated population for that date. (The estimates were based on the 1970 census count updated by intercensal births, deaths, and net immigration.)

While the population had increased by 10.5 percent over the 1970 figures, the housing count increased by fully 28.5 percent. This disproportionately large increase results primarily from the "baby boom" entering the housing market and from major changes in life style which caused a reduced household size and an increase in second homes.

The higher than expected count of both population and housing units will have a significant impact on the Federal statistical system, since so many statistical programs use the decennial census figures and current population estimates in their programs for the computation of rates, for sample design, and for population controls. The changing geographic distribution of the population, as well as the count, will also have a significant impact on Federal programs which use population data to determine program eligibility and to distribute Federal funds, In addition, the higher count will have an impact on the Census Bureau's work relating to the evaluation of coverage in the 1980 census.

Developmental work continued during the year on the evaluation program which will be accomplished through demographic analysis, matching Current Population Suvey data to census results, and through the matching of various administrative files to census results. The Census Bureau also undertook in 1980 an evaluation of the existing studies of illegal immigration to the United States

and continued its work in developing a range of estimates of the illegal alien population, since the higher than expected 1980 census total may have occurred partly because of increases in the number of illegal aliens in the United States.

Since Census Day, a number of jurisdictions have filed lawsuits against the Census Bureau. In broad terms, the lawsuits have involved such issues as adjustment of the 1980 census results for any undercount, allegations of mismanagement and inappropriate census procedures, and access to data which are confidential by statute. Some suits have simply demanded that the Census Bureau accept the locally derived estimate in lieu of the census count.

By January 1981, over 35 suits had been filed relating to the 1980 census. A few had gone to trial, some were dismissed, and most were pending. On request of the Government, the multidistrict litigation panel ordered nine cases pending in seven districts to be referred to a single judge for coordinated or consolidated pretrial proceedings. Action was being taken to have the remaining pending cases also transferred.

Among the most publicized lawsuits, *Young v. Klutznick* (Detroit) and *Carey v. Klutznick* (New York) are both on appeal after receiving rulings unfavorable to the Government in district court. In Detroit, the U.S. District Court issued a ruling on September 25, 1980, which requires the Bureau to adjust the 1980 census counts for all jurisdictions to correct for any undercount among Whites, Blacks, and Hispanics. The court ordered this adjustment to be made before the apportionment counts and redistricting counts were to be announced on January 1, 1981, and April 1, 1981, respectively. Supreme Court Justice Potter Stewart granted a stay of the order pending appeal, thereby permitting unadjusted counts to be released.

The Census Bureau has stated that it is unable to measure the undercount and adjust the census results in a statistically defensible manner. The method traditionally used to estimate the undercount suggests that the measured undercount in 1980 is close to zero—an amount so small that the errors in the measurement could be larger than the measure itself. The Government is appealing the Detroit decision on a number of legal issues and because there is no statistically defensible way to adjust the results.

The district court judgment in the New York case also calls for statistical adjustment. Unlike Detroit, mismanagement claims related to New York were also specifically litigated and certain actions were ordered. The Supreme Court granted a stay pending appeal of that part of the order dealing with the release of unadjusted counts to the President.

To date, the Census Bureau has not been prevented from releasing 1980 census counts by the statutory deadlines. However, it remains to be seen whether the courts will require either a statistical adjustment for undercount or other actions related to changing the 1980 counts. With the number of suits approaching 40, it is not possible to foresee the ultimate outcome. One thing is clear—the conclusion of the 1980 census is likely to be a protracted event as the result of litigation.

FEDERAL COMMITTEE ON STATISTICAL METHODOLOGY

Two reports in the Statistical Policy Working Paper (SPWP) series were issued during 1980: the *Report on Exact and Statistical Matching Techniques* (SPWP 5) and the *Report on Statistical Uses of Administrative Records* (SPWP 6). These reports were prepared by subcommittees of the Federal Committee on Statistical Methodology. The report on matching techniques was discussed in a seminar with Federal agencies in the fall of 1980. A seminar on statistical uses of administrative records is planned for the spring of 1981.

The *Report on Exact and Statistical Matching Techniques* describes and contrasts exact and statistical matching applications. The report is intended to be useful to statisticians in various Federal agencies in determining when it is appropriate to use exact or statistical matching techniques. The report also includes suggestions for further research.

The first portion of the *Report on Statistical Uses of Administrative Records* provides a review of major administrative report files pertaining to individuals and to businesses. Major statistical uses of administrative records are outlined, including (1) direct use of the records to obtain statistics and to supplement existing data via expanding coverage or content and (2) technical uses of the data for constructing sampling frames, quality control, improving estimation procedures, and data evaluation. New developments in data from business establishment reporting and a number of potential uses

of administrative records for data linkage are described. Technical problems in the statistical use of administrative records, including coverage, comparability, error and timing of data are discussed. The final section of the report covers various issues in accessing administrative records for statistical purposes. While much statistical use of administrative records is currently made in Federal agencies, this report is intended to inform managerial and technical staffs of the vast potential as well as difficulties entailed in augmenting current uses of administrative records for statistical purposes.

Several seminars were held in 1980 to discuss the characteristics of error profiles with Federal producers of data based on the report *An Error Profile: Employment as Measured by the Current Population Survey* (SPWP3). Some of these seminars included participants from a number of agencies; others were held with specific Federal agencies and focused on the statistics produced by that agency. Some agencies are now preparing error profiles for selected statistical series.

The Federal Committee on Statistical Methodology selected new topics for future study and subcommittees were started on the following topics: (1) guidelines for making and publishing revisions and corrections to time series; (2) the role of telephone, mail and personal interview surveys in Federal statistics; (3) questionnaire design—what should and should not be done; and (4) implementation of statistical uses of administrative records. The proposed products of these subcommittees will be reviewed during 1981 by the Federal Committee on Statistical Methodology.

REDESIGN OF HOUSEHOLD SURVEYS

Since 1978 the Bureau of the Census and the sponsoring agencies have been involved in planning for the redesign of the major household surveys conducted by the Census Bureau. These surveys include: the Current Population Survey (CPS), the Health Interview Survey (HIS), the National Crime Survey (NCS), the Annual Housing Survey (AHS), the Survey of Residential Alterations and Repairs (SRAR), the Current Expenditure Survey (CES) and prospectively, the Survey of Income and Program Participation (SIPP). The redesign provides the opportunity to use the improved sampling frame provided by the 1980 census and to introduce design efficiencies through the planning and selection of the samples in one process.

In order to raise the visibility and underscore the urgency of the redesign effort, OFSPS initiated a review to determine the current redesign planning status of the surveys and to encourage the sponsoring agencies to develop a review strategy appropriate to each program. This review has been designed to complement agency efforts to provide the Census Bureau with specifications of data requirements in the detail needed to place the redesigned surveys in operation during the period 1983-1985.

During 1980, OFSPS efforts were focused on encouraging reconsideration of each sponsor's data requirements and helping to ensure that the priority data needs of other agencies are adequately considered in the redesign. A start was also made on addressing crosscutting issues of concern to all the major household programs. Crosscutting issues identified to date include statistical and exact matching, timeliness, flexibility and confidentiality. An initial set of data for matching was identified by an ad hoc committee of persons experienced in matching data sets. The recommendations of the committee are being reviewed by the Census Bureau and sponsoring agencies for feasibility.

As of the end of 1980, the CPS redesign was the most advanced due to the availability of the findings of the National Commission on Employment and Unemployment Statistics. An extensive review is underway of the HIS with active consideration being given to alternatives for the inclusion of medical care expenditures as part of the redesigned program. A comprehensive review of data requirements of the Department of Housing and Urban Development for the AHS was completed and planning discussions were initiated with the Departments of Transportation and Agriculture. Earlier in the year, the Energy Information Administration of the Department of Energy agreed to coordinate the selection of primary sampling units for its planned ongoing survey of residential energy consumption with the areas to be selected for the redesigned AHS.

A research effort is underway on basic data issues relating to the NCS, but a decision on redesign has been deferred due to funding reductions. Redesign planning for the Survey of Residential Alterations and Repairs was initiated by the Bureau

of the Census. Planning for redesign of the Consumer Expenditure Survey will begin after data collected in the first operational panel are analyzed. Reserve panels are being set aside for the SIPP survey contingent on the beginning of an operational program in 1982.

LONG-TERM CARE

Major planning efforts have been undertaken in the Department of Health and Human Services (HHS) to improve the data base for policy development in long-term care (LTC) for the elderly and other impaired and disabled persons. In view of the expected large increase in the population needing long-term care, present estimates indicate that nursing home expenditures, of which half are paid by public programs, might grow by the end of the century from 20 to over 30 percent as large as hospital expenditures. In addition to the current and anticipated financial burden placed on families and governments alike, the existing system is criticized for a lack of community-based alternatives to nursing home care and inadequate means for assuring that individuals in need of long-term care receive necessary services in appropriate settings.

The major programmatic activities of HHS will be focused around the National Channeling Demonstration Program and the Departmental Long-Term Care Task Force. A Working Group on LTC Data has been organized, chaired by the Office of the Assistant Secretary for Planning and Evaluation (ASPE) and including representatives of the Public Health Service (PHS), the Health Care Financing Administration (HCFA) and the Office of Human Development Services (OHDS), including the Administration on Aging (AOA).

Several major issues should be addressed in the course of developing a Federal long-term care policy for the 1980's: whether present financing mechanisms are appropriate; what should be the relative financial burdens of Federal and State governments; how to contain costs while assuring quality; and whether the supply of nursing home beds and of trained personnel is sufficient. Nationally representative data on LTC provision and utilization are necessary for future policymaking, for the assessment of programs based on the channeling demonstration project and for the projections of costs for developing these programs.

The LTC data working group was given the responsibility for developing an operational plan for obtaining nationally representative LTC data, and an overall research plan for small area studies, experimental projects and other demonstrations. The statistical plan has five major components: the survey of Impaired Individuals in Private Households, scheduled for 1984; the survey of Individuals in Residential Institutions, scheduled for 1984; the Inventory (Census) of Community Long-Term Care Providers, scheduled for 1982; the Survey of State Long-Term Care Programs and Policies, scheduled for 1982; and an analysis and synthesis of existing LTC data.

The first four studies are in various stages of development; the analysis and synthesis of existing LTC data will start in 1981. The recommended statistical plan would require an expenditure of $36 million in current dollars over the next 10 years. It would provide a set of national estimates of the mix and extent of functional impairments in the Nation's population, the utilization of services, the costs and financing of services, the supply of services, and the extent of informal support from family and friends. The data gathered would help to answer a large number of priority research questions concerning LTC which are critical in formulating future national LTC policy.

The statistical plan data, in combination with the channeling agency demonstrations and the research studies of HCFA, PHS and AOA, should provide a comprehensive LTC information base for policy planning purposes.

The Interagency Statistical Committee on LTC for the Elderly, chaired by OFSPS, has continued its work on implementation of the recommendations contained in its report on *Data Coverage of the Functionally Limited Elderly.* At the request of the Director of OMB, an interim report of progress in the implementation of recommendation 3 on improving procedures for defining health care institutions was completed in January 1981. A Work Group on the Classification of Support Services Living Facilities has been established to develop a set of working definitions of living quarters providing support services. The emergence of a variety of community based providers of care and services other than the traditional types of health care has led to substantial confusion about the prevalence and the classification of these kinds of support living environments. The recommendations

of the work group should be helpful in moving towards a standard set of definitions for support service living arrangements. Members of the HHS Work Group on LTC Data have been involved in the work of the Interagency Statistical Committee and the Committee's recommendations have been considered in the development of the statistical plan.

The Interagency Statistical Committee has also requested that the National Committee on Vital and Health Statistics (NCVHS) appoint a monitoring body to review the Committee's recommendations on the use and elaboration of the minimum data set on LTC and to consider incorporation of the recommended items on economic resources, family and functional limitations into the LTC minimum data set.

INFORMATION COLLECTION BUDGET, FY 1981

The Information Collection Budget (ICB) represents the Federal Government's first attempt to establish a budgeting control process for data collection and public response burden. The ICB will affect the availability of statistics through control of the collection of statistics and administrative data which are or might be used for statistical purposes. The ICB process was developed and implemented by the Office of Information and Regulatory Policy, OMB, and was based on President Carter's Executive Order No. 12174, "Paperwork." This planning and budgeting approach to paperwork control was intended to:

- —Provide a rational basis for setting overall control totals for Government paperwork;
- —Extend this control to virtually all executive branch paperwork as compared to the fraction of data collection reports previously subject to Federal Reports Act review;
- —Raise the level of responsibility for paperwork and focus it on reporting and recordkeeping requirements as resource management decisions;
- —Permit the targeting of OMB resources to major paperwork problems rather than spreading them across ad hoc reviews of individual forms; and
- —Provide an overall framework for control that would permit agencies to have greater autonomy in managing their paperwork.

The budgets are developed by the agencies and require that each agency carefully review its need for information from the public. Needs are to be assessed in terms of the actual uses which are to be made of information collected, with data needs to be weighed against the time and costs to the public for providing information.

OMB bulletin 80-11 (June 19, 1980) provides implementing instructions for the ICB. It advised agencies that their requests were to be ". . . the result of a careful analysis of total agency requirements . . ." and that agency information requirements should normally be satisfied in the following priority order:

> "(a) information already available in existing agency files, records, reports, and other established information files and holdings; (b) information available from another agency; (c) the production or creation of the needed information internally; and (d) new information collection from the public." This directive also informed agencies that OMB would review each request, meet with agencies to discuss their requests, develop initial allowances, permit agencies to appeal these allowances, and establish final allowances.

Because Executive Order No. 12174 applies to all Federal Departments, including the Internal Revenue Service (IRS), the ICB establishes control over 95 percent of the total paperwork burden imposed by the Federal Government. At the same time, the ICB allows each agency to develop information collection priorities within its established allowances.

Agencies subject to the FY 1981 ICB proposed a total of 1,285 million hours of paperwork burden, an increase of approximately 1 percent over the FY 1980 paperwork base. The final allowances for FY 1981 reduced this total to 1,228 million hours, a reduction of 4 percent. About 46 percent of these data collection requests were subject to the Federal Reports Act control and review by OMB; this portion of the paperwork burden was reduced by about 9 percent. Reporting not subject to control by OMB increased by 2 percent. Most of the paperwork reduction was achieved by the completion of the 1980 decennial census and the development of uniform claims forms for use in Medicare and private health insurance.

Of the total paperwork burden allowed for FY 1981, only 2 percent will be for general-purpose statistical surveys. Excluding IRS, which accounts

for approximately half of the total paperwork burden, statistical surveys account for about 4 percent of the burden subject to Federal Reports Act control; program evaluation and research account for another 7 percent. The greatest portion of the controlled reporting burden is devoted to regulatory and compliance reporting (40%), with applications next in size (29%). Program management accounts for the remaining 20 percent of response burden. (Further details on the characteristics of Federal paperwork are available from the OMB publication, *Information Collection Budget, Fiscal Year 1981*.)

Implementation of P.L. 96-511, the Paperwork Reduction Act of 1980, which becomes effective on April 1, 1980, will remedy many of the operational and conceptual shortcomings of the Federal Reports Act which currently governs clearance of data collections. Among other significant provisions, the act: (1) repeals all present exemptions to the Federal Reports Act and gives OMB authority to review all reporting and recordkeeping requirements and requests imposed by executive branch agencies, including the independent regulatory agencies, (2) clarifies the definition of reporting burden to include cost to the public as well as the time required to comply, (3) requires establishment of a Federal Information Locator System to increase the sharing of information by Federal agencies and help reduce duplications, (4) imposes requirements to expedite the OMB approval process, and (5) imposes requirements to strengthen agency oversight in the information collection area. As noted under General Issues, the act establishes an Office of Information and Regulatory Affairs within OMB, with responsibility for statistical policy and coordination, as well as general information policy, clearance and paperwork control, record management and automatic data processing and telecommunications. The act also provides specific burden reduction goals for 1982 and 1983.

One of the approaches provided by P.L. 96-511 for the strengthening of agency oversight of information collection permits OMB to delegate its approval authority to qualified agencies. Under this authority, OMB is not precluded from intervening in individual information collections if warranted. Early in 1981 OMB issued for public comment a proposed rule relating to the delegation of approval authority.

The general purpose application and multiagency use of statistical data collections, however, will continue to require more intensive centralized review of individual projects. Therefore, the interagency coordination of statistical efforts through individual project review and consultation will continue to serve as a major instrument of statistical policy development to ensure the maximum utility of Federal statistical data collections.

CIVIL SERVICE REFORM

In the spring of 1979, the SPCC established a Task Force on Civil Service Reform to examine issues and prepare recommendations concerning the impact of the Civil Service Reform Act on the Federal statistical system. The task force was requested to make recommendations on policies and activities which would contribute to ensuring the integrity and improving the performance of the Federal statistical system as the provisions of the Civil Service Reform Act are implemented.

In accordance with this mandate the task force selected a number of areas for monitoring and the preparation of advisory papers. Initial efforts were directed to an examination of the establishment of career-reserved versus general Senior Executive Service positions in the statistical agencies. The task force concluded that there is no evidence to date that this policy has had a negative impact on the integrity of the Federal statistical system. At the same time, because of the newness of the act, the task force identified as areas for continued monitoring the procedures for filling career-reserved versus general positions, along with the criteria used in various agencies for the designation of positions to be included in the merit pay system.

During 1980, major efforts of the task force were directed to the development of qualification requirements (skills needed) and evaluation factors (evidence to evaluate applicants' qualifications) for three types of senior positions or functions which are relatively common across the Federal statistical system: research and methodology, survey design, and statistical operations and processing. Recommended managerial and technical qualification requirements and associated evaluation factors for these positions were presented to the SPCC at the close of the year. Additional comments have been solicited from the American Statistical Association. These recommendations will be provided in 1981 to the agencies in the Federal statistical system and

to the Office of Personnel Management (OPM) as guidance for the development of recruitment and selection criteria for senior executives.

The task force also addressed the conduct and content of executive development programs for statisticians under the Civil Service Reform Act. A paper outlining the goals of SES development programs for statisticians, types of skills needed, types of development needed, and opportunities for development was presented to the SPCC. Following the incorporation of recommended additions the paper will be circulated during the coming year to agencies in the Federal statistical system and to OPM.

INTERNATIONAL STATISTICS

During 1980, U.S. statistical agencies participated in several important international meetings concerning national accounts and balances, the International Comparison Project, the World Bank's Living Standard Measurement Study, land use statistics, and science and technology statistics. In particular, the Bureau of Economic Analysis, the Bureau of Labor Statistics, the Department of Agriculture, the Environment Protection Agency, the Council on Environmental Quality, and the National Science Foundation participated in and provided support for meetings which continued work on the development of standards for the comparability of national data. The Director of OFSPS participated in the twenty-eighth plenary session of the Conference of European Statisticians. Further, OFSPS coordinated and provided statistical information in response to official requests from international organizations.

The United States participated in international technical assistance and training and in the development of international standards which aid in achieving comparability of national statistics. The United States also continued efforts to improve statistical capabilities of developing countries, especially through the United Nations Household Survey Capability Program. This is a major global program to help developing countries establish an institutionalized capability for conducting continuous and integrated household surveys which will provide information for national development plans.

The Committee on Improvement of National Statistics (COINS) is a forum for discussion of statistical issues in the Americas. The members of COINS are the principal statistical officers of countries in the Western Hemisphere. The Coordinating Board is the executive body of COINS and the United States participated in three of its meetings during 1980. Their main concern was the future organization of COINS, the planning of the 15th Session of COINS and the development of the Subcommittee on Household Surveys of COINS. The 15th Session of COINS is scheduled for November 1981 in Santiago, Chile. At this session the discussion will include the future of COINS, changes in the constitution recommended by the Coordinating Board, the future work of COINS for 1982/83, and a report of the Subcommittee on Household Surveys. The Inter-American Statistical Institute has carried out the secretariate function of COINS. A recent revision of the constitution included the Organization of American States and the Economic Commission for Latin America of the United Nations on the Coordinating Board of COINS, thereby augmenting the resources available to COINS.

During the year, the Demographic Data Center of the Census Bureau published country demographic profiles for Morocco, Turkey, and Pakistan and initiated work on demographic profiles for Bangladesh, Brazil, Botswana, and Liberia. In addition, a report presenting basic population data for countries of five million or more population was published. *World Population 1979,* which presents basic population data for all countries of the world, was released.

Beginning in September 1980, the Census Bureau's International Statistical Program Center (ISPC) will offer diplomas in statistical technology and survey management and in agricultural economics. For the 1980-1981 training year, approximately 100 participants from 35 different countries were enrolled in ISPC's training program. About half of these are from Africa, one-third from Asia and the Middle East, and the remainder from Latin America and the Caribbean. Special workshops complement the longer-term training offerings of the ISPC. In 1980, a Workshop on Planning and Implementing a Census of Agriculture was conducted jointly by ISPC and the Food and Agriculture Organization of the United Nations. This workshop was attended by 16 participants from 13 countries. In addition, a Workshop on Planning and Implementing a Household Survey Program was held at ISPC in support of the objectives of the United Nations National House-

hold Survey Capability Program. A total of seven participants from seven countries attended this workshop; a similar workshop is planned for 1981.

Recently the United Nations Statistical Office requested that ISPC cooperate in offering a series of workshops worldwide in support of the 1983 World Program of Industrial Statistics. In response to this request, ISPC prepared a project outline for *New Providencia: A Case Study for Economic Censuses and Surveys.* The World Census Staff of ISPC continued to work toward completion of *Popstan: A Case Study for the 1980 Censuses of Population and Housing.*

The ISPC staff continued to conduct workshops in developing countries in support of the 1980 world program of population and housing censuses. Four-week Popstan workshops were held in Sri Lanka for Asian countries, in Paraguay for Latin American countires, and in Cameroon and Kenya for African countries. Plans are in progress for Popstan workshops in Egypt and Tunisia. Workshops on mapping operations for population censuses were also held in Senegal and Panama, using the training document *Mapping for Censuses and Surveys* prepared by the World Census Staff.

The ISPC also is supporting a major new study of internal migration and urbanization is being undertaken in seven Asian countries by the Economic and Social Commission for Asia and the Pacific of the United Nations. The study is intended to focus on the links between temporal variations in urban/rural rate of development, study variations in the volume, type and direction of intracountry population movement, and identify socioeconomic and social-psychological factors that are related to migration.

The initial phase of a cooperative statistical project was completed under the oversight of the United States-Saudi Arabian joint Commission on Economic Cooperation which was established in 1974 to promote programs of cooperation between the two countries in the fields of industrialization, trade, manpower training, agriculture, and science and technology. The agreement stipulates that the Census Bureau will provide statistical and data processing advisory assistance to the Saudi Arabian Central Department of Statistics. The Census Bureau continues to provide technical advisory assistance to the Bangladesh Bureau of Statistics. An extension of the project is being considered which provides for an increase in the level of assistance in long-term advisory services in the areas of foreign trade and economic survey programs.

The International Labor Statistics Program Center of the Bureau of Labor Statistics also conducted several special seminar workshops during the year. In 1980, seminars covered subjects that include wage statistics, manpower projections, prices, poverty statistics, income statistics, and manpower policy analyses. These seminars run approximately six weeks and are intended to aid participants in the improvement of statistical programs in their respective countries. At each of the seminars there are approximately 20 participants, from slightly fewer countries.

Statistical Standards

The demand for statistical standards continues to increase, both in traditional areas of application of standards and in new areas that arise from the broadening use of statistical information. The increased demands are a recognition of the benefits of standards in making data series more compatible and useful for analysis of crosscutting, interdependent social and economic issues, in helping to minimize the burden of survey respondents, in improving the quality of statistical data and in maintaining the integrity and objectivity of Federal statistical programs.

The staff of OFSPS has been working to update or otherwise improve a number of the standards for presenting statistical information. Several of these are discussed briefly in this section. Other topics discussed in other sections of this report also have a significant element of standards development. These include user access to Federal data, civil service reform, data for analysis of issues related to size of business, economic indicators, seasonal adjustment methodologies, and the several topics under consideration by the Federal Committee on Statistical Methodology.

Several areas of standards work are not discussed in more detail in this report. One effort concerns removing certain anomalies in the statistical definition of poverty and making better use of available income data for the series.

POPULATION PROJECTIONS FOR USE IN FEDERAL FUND ALLOCATIONS

In 1979, OFSPS issued jointly with OMB proposed standards for the development and use of

population projections in Federal fund allocations. The proposed standards are limited to those cases in which population projections are appropriately used by an agency in distributing funds; caution was advised in furthering the use of population projections as an element in such decisions. The proposals were published as two separate notices for public comment in the *Federal Register* for December 5, 1979. An explanatory article was published in the January 1980 *Statistical Reporter*.

Over 200 letters and numerous telephone calls were received during the 120 days allowed for public comment. In addition, a series of public hearings on the proposed standard were held in New Orleans, Los Angeles, St. Louis, and Philadelphia. Based on the comments received through these sources, OFSPS referred three issues to the SPCC: (1) the need for an opportunity for State involvement in the development of State-level projections, (2) the possible requirement for more than one disaggregation of the State-level projections to sub-State areas, and (3) the need for greater precision in the requirements for State/sub-State coordination in the development of the sub-State projections.

In December 1980 the SPCC adopted a complete, revised set of recommendations which had been developed by the OFSPS-chaired Task Force on Population Projections. Based on these new recommendations, OFSPS and OMB will revise the original *Federal Register* notices, including changes not requiring SPCC consideration. The revised notices will be made available for public review and comment.

OFSPS will coordinate an effort in 1981 by the Bureau of the Census and the Bureau of Economic Analysis to develop a single population projection methodology which incorporates both economic and demographic assumptions about future growth. Until this methodology has been developed and tested, however, an interim procedure has been accepted by the SPCC in its revised recommendations.

INDUSTRIAL DIRECTORY

The concept of an industrial directory that could be used as a common listing of the business establishments from which data are collected has long been needed by statistical agencies to improve the efficiency and quality of economic statistics. Some 13 years ago the Bureau of the Census was designated as the lead agency for the development of a list of businesses which would become available for use by other Federal statistical agencies. This list of businesses is known as the Standard Statistical Establishment List (SSEL). In order for the SSEL to be used by other Federal agencies or units for statistical purposes new legislation will be necessary. It may take the form of either all-inclusive confidentiality legislation such as the Confidentiality of Federal Statistical Records Act proposed by the President's Reorganization Project for the Federal Statistical System, or of specific legislation amending Title 13 of the U.S. Code, the legislative authority of the Census Bureau.

In March 1980 it was determined that it was unlikely that the Confidentiality of Federal Statistical Records draft legislation would be considered in the near future. (Copies of the draft legislation are available from OFSPS.) Consequently, a proposed amendment to Title 13 which had previously been written and reviewed by the major statistical agencies was updated incorporating comments received by OMB through the legislative review process.

A working group was formed to develop draft procedures and rules governing the uses of the SSEL and materials that would help support legislative proposals. The working group developed a draft statement of proposed regulations including a model agreement regulating conditions for use of the SSEL. In addition, the group made suggestions for the improvement of the SSEL fact sheet prepared by the Census Bureau. Finally, the working group started an investigation of estimated costs relating to interagency use of the SSEL, and listed technical issues relating to the implementation of the SSEL at the Bureau of Labor Statistics (BLS) and at the Economics and Statistics Service (ESS) of the Department of Agriculture.

Late in 1980 OFSPS bagan coordinating more detailed planning for the implementation of the SSEL with the group at the Census Bureau responsible for the development of the SSEL and with other agencies anticipating a major use of the SSEL. Discussions have begun with ESS concerning the agricultural portion of the SSEL. Similar discussions will soon be initiated with BLS and with other agencies as necessary.

CLASSIFICATION OF STATISTICS ON SEGMENTS OF BUSINESS

The 1979 annual report on federal statistics reported on the formation of an OFSPS-chaired Interagency Technical Committee on Segments of Business to study the needs and uses of business data classified by major product line categories of diversified companies. The activity was described as relating to the classification of statistics on "segments of business." The need for such a classification system was recommended by the Commission on Federal Paperwork because of the great expansion in the scope of American business firms, many of which are active in more than one major product line.

During 1980, efforts centered on the identification of the extent to which segmented financial data are being collected and used by Federal agencies. OFSPS conducted extensive interviews with individual agencies and held meetings with interested parties in the private sector to apprise them of progress and to solicit their advice.

A report of this work will be given to the interagency committee in 1981 and will serve as a basis for developing priorities for future work in this area.

OCCUPATIONAL CLASSIFICATION

A revised edition of the *Standard Occupational Classification (SOC) Manual* (completed in 1980) was published in early 1981. The revised edition was developed in response to the need to restructure the manual to provide an aggregation scheme more useful for cross-tabulation with other demographic characteristics and for small areas where little detail can be published. A need for restructuring the classification became apparent in developing the tabulation format for the 1980 Census of Population and in the concern of civil rights groups that more appropriate statistical data be provided for affirmative action plans. Many titles were moved to make them more compatible with dictionary characteristics, and others were moved to handle various aspects of jobs in a more consistent manner. The new edition of the *SOC Manual* combines the structure of the classification and the alphabetical index in one volume.

The occupational structure given in the manual has been used in the 1980 Census of Population in a modified form with two exceptions. The first exception is that "Pilots" will be shown in two alternative groupings in the census tabulations to permit comparisons of earlier tabulations and data on job content and demographic characteristics. Second, the two Major Groups for "Machine Setup Operators" and "Machine Operators and Tenders" will not be classified separately, although the structure within the two groups will be retained.

INDUSTRIAL CLASSIFICATION

During 1980 an intensive effort to evaluate 240 proposals for changes in the 1972 edition of the *Standard Industrial Classification (SIC) Manual* was made by the OFSPS-chaired Interagency Technical Committee on Industrial Classification. The recommendations of the Committee were reviewed by statistical agencies before being published for public comment in the *Federal Register* on January 30, 1981. A public hearing was held in February 1981 and additional comments on the draft revision were accepted through March 20.

The proposals for change were wide-ranging and voluminous. Although there were more proposals for this revision than for the 1972 revision, fewer of them were accepted by the Technical Committee. The extent of this revision appears to be somewhat less than the last revision, a fact explained in part by then ten-year interval since the last revision compared with 15 years between the two previous editions. The "Finance, Real Estate, and Insurance" Division was substantially revised, as well as the "Transportation and Public Utilities" Division. Many changes were made in the "Manufacturing" Division, but they were not as comprehensive. In the "Mining" Division several small industries were combined and two new fuel industries were created.

Development work on the *SIC Manual* for 1982 will continue through most of 1981. Decisions on the basic structure of the system are to be completed by July and redrafts of industry descriptions and other details will be completed in preparation for a published manual.

Principal Statistical Programs

OVERVIEW

The following sections provide a review of new initiatives, major progress in addressing issues, and major program redirections occurring in the statis-

tical system and brief overviews of many of the continuing statistical programs. Treatment of programs is selective because there are no clear dividing lines between statistics and program administration, evaluation, and research of which they are often an integral part. In addition, agency practices vary considerably in the degree to which an attempt is made to identify programs which are perceived to be related to the planning, collection, production, and analysis of statistics. Since the focus of this section of the report is on changes during the year, there is no attempt to provide a complete overview of continuing activities. Readers wishing a more complete description of major program responsibilities in each subject area are referred to *A Framework for Planning U.S. Federal Statistics for the 1980's.*

This annual report includes the entire programs of six agencies: the Bureau of Economic Analysis; the Bureau of the Census; the Bureau of Labor Statistics; the Economics and Statistics Service; Energy Information Administration; and the Statistics Division of the Internal Revenue Service. The complete programs of the Bureau of Justice Statistics, the Department of Housing and Urban Development, the Department of Transportation, the Environmental Protection Agency, the Federal Trade Commission, the National Center for Education Statistics, the National Center for Health Statistics, and the Small Business Administration, are also reviewed. Programs for other agencies may not be as well identified because for other agencies statistical programs are funded out of appropriations which support many other activities.

The table accompanying this section has been prepared to provide a general indication of program size by giving actual 1980 obligations for statistics and estimates for 1981. The table also includes a breakout of current and periodic programs for the larger agencies.

AGRICULTURAL STATISTICS

Shortly before the end of 1980 the Department of Agriculture formed the Economics and Statistics Service by removing activities that provided technical assistance for cooperatives from what had been the Economics, Statistics, and Cooperatives Service. As the statistical and analysis center for the Department of Agriculture, the Economics and Statistics Service (ESS) carried out an extensive program during 1980.

A major ESS accomplishment was the reformating of sector accounts and economic indicators to show more accurately the economic status and productivity of the Nation's farms. Income accounts, asset and debt accounts, estimates of productivity, and estimates of the cost of production for major commodities were assembled into the indicators program for the first time. Nationwide sample surveys of major crops were used in 1980 to update the estimates of crop production costs while projections of production costs continued to be based on the analysis of yield trends and current forecasts of input prices.

New concepts were incorporated into the income accounts and asset and debt accounts. The primary change was to separate business income and assets from the household. New sources of data were developed to implement other new concepts and to disaggregate the accounts into important subgroups. It is believed that the new measures will allow analysts to identify better the causes of structural change, and to assess the effectiveness of alternative policies in achieving economic, financial, and distributional goals.

The development of list sampling frames of farm operators reached the operational stage for 29 States during 1980. These list frames were used by ESS to select 23,000 large livestock and poultry operators for the December Enumerative Survey in addition to 25,000 area tracts included in the sample. For the June Enumerative Survey the continuing sample of 15,000 land segments was supplemented with list samples of more than 19,000 large cattle and hog operations. The December and June survey programs provide the primary estimates for planted and harvested acres of crops, land use, numbers of livestock, farm labor, farm numbers, and farm population. Similar multiple-frame survey techniques are used in all States for other hog and cattle surveys. In 1980, rotational sampling for multiple-frame hog surveys was initiated on a pilot basis in five States to reduce respondent burden.

ESS held four regional conferences in 1980 to evaluate data user needs. These conferences resulted in a number of program initiatives and changes to existing programs. A new program of aquaculture statistics was started, with a benchmark survey of trout and catfish production in 12 major producing States. This survey provided the basis for initiation of a monthly report of processed

catfish raised on farms. Changes in the vegetable statistics program were also made. Greater flexibility of series and publication dates were introduced to meet varying needs for data for geographic areas and individual crops. Estimates of vegetable production, price and value were published less often because users primarily needed statistics for planted acreage. User demand has also led to continued expansion of rapid data transmission for the broad array of crop and livestock estimates. Data are now disseminated via computer to all States except Alaska within minutes of release.

Several projects were conducted in 1980 as part of the AgRISTARS program. The use of satellite data to improve current esimates of wheat in Kansas and corn and soybeans in Iowa was one experimental project. Land cover estimates, including rangeland, woodland, cropland, and urban areas were examined. Additional ground data were collected to study relationships between land cover and LANDSAT spectral readings. Related research concentrated on studying improvements in registering satellite data to actual ground locations, improving classification of types of crop or land cover, and improving data-handling capabilities.

Early Warning/Crop Condition Assessment Research conducted as part of the AgRISTARS program included testing of a wheat stress indicator model, utilizing cloud cover to estimate solar radiation, and testing, in an operating environemnt, a winter-kill indicator model for fall seeded wheat and rye. A broad range of research was undertaken involving a combination of spectral and environmental remote sensing data with traditional ground observation information. LANDSAT data were also used in developing domestic and foreign area-sampling frames to study rangeland conditions in an arid environment.

Increased emphasis has been placed by ESS on improving data and information on U.S. agricultural exports, on the impact of foreign economic growth on international trade, and on agricultural resource use and development opportunities in foreign countries. In this framework, multicountry projections are being developed of world and regional production, consumption, stocks, trade, and prices for major agricultural commodities.

The Foreign Agricultural Service (FAS) of the Department of Agriculture maintains a worldwide agricultural intelligence and reporting service through a continuous program of reporting by 70 attache posts covering 120 countries. Reporting includes data and information on supply and demand conditions, foreign government policies, trade in agricultural commodities and market opportunities. An activity to assess the condition of foreign crops relies heavily on computer aided analysis of satellite, meteorlogical, agricultural, and related data. To speed further the availability of international agricultural data, a telecommunications system is being developed in cooperation with the Department of State for a worldwide minicomputer network.

Dissemination of FAS data on current export sales activity continued through the weekly *U.S. Export Sales Report.* Significant daily sales activity were also announced in news releases, and periodic data on details of sales contracts were collected to facilitate the analysis, review, and audit of export sales activity.

Agricultural statistics activities during 1980 at the Census Bureau involved both the 1978 and 1982 Censuses of Agriculture. Publications from the 1978 census were produced on a flow basis and sample surveys were conducted for more detailed data on selected topics. These follow-on surveys provide specialized State and national level information for calendar year 1979 on such subjects as farm irrigation, farm energy consumption and farm income, credit, and expenditures. Preliminary reports are planned for the spring of 1981.

Planning for the 1982 Census of Agriculture was also an important activity in 1980. Content suggestions were solicited from other Federal agencies, State departments of agriculture, and State land grant colleges. Particular emphasis in 1982 planning was directed to the data release program because of increasing publication costs and the desire to take advantage of improved technology in microfilm and computer tape dissemination methods.

CRIMINAL JUSTICE STATISTICS

Increased recognition was given in 1980 to criminal justice statistics with the creation of the Bureau of Justice Statistics (BJS) on December 27, 1979, under provisions of the Justice System Improvement Act. The Bureau of Justice Statistics was designated as the principal Federal agency responsible for the collection, analysis, and dissemination of State, local, and Federal statistics on crime, the criminal justice system, and related activities. The

act assigned responsibility to BJS for the statistical programs of the National Criminal Justice Information and Statistics Service of the Law Enforcement Assistance Administration. The other major data collection effort in criminal justice statistics is the Uniform Crime Reports Program (UCR) administered by the Federal Bureau of Investigation (FBI).

Three major statistical programs are conducted by the BJS: the National Crime Survey (NCS), the National Prisoner Statistics Program and the Uniform Parole Reports. The NCS, which has been in operation since 1972, provides information regarding levels of criminal events and changes in those levels throughout the country. The survey statistics are gathered by the Bureau of the Census in interviews with 65,000 households. In 1980, in addition to *Criminal Victimization in the United States: 1978*, two special reports were published, *Crime and Seasonality: 1980* and *The Hispanic Victim: 1980.*

During 1980, BJS began work on a methodology to release preliminary survey data at periodic intervals throughout the year so that the Congress and the general public will have a more timely indication of fluctuations in the level of measured crimes, including those not reported to the police. As a result of this activity, victimization data will be released 6 months earlier than previously. For example, data for 1980 will be released in March 1981 rather than in September 1981. After the initial release of annual 1980 data, quarterly estimates will be released beginning with data for the first quarter of 1981.

Under a consortium arrangement with the Bureau of Social Science Research (BSSR), methodological work continued in 1980 on redesign of the NCS to enhance the utility of data for State and national criminal justice program and policy needs and to provide a more reliable social indicator of the impact of crime.

The National Prisoner Statistics (NPS) program provides annual data on the prison population, including the sex, race, and ethnicity of prisoners. Periodically, the NPS collects information that is not available from regular administrative sources such as detailed data on the characteristics of jails and jail inmates and prisons and prison inmates. During 1980, the 1978 and 1979 data editions of prisoners in State and Federal institutions and the 1978 and 1979 data reports on capital punishment were published.

The Uniform Parole Reports (UPR) program collects statistics on the characteristics of persons on parole, the number of parole agencies, the number of parole offenders and caseloads. Statistics are also kept on how many individuals complete parole successfully and how many are returned to prison within a 3-year period immediately following their release. Two reports in a series were published in 1980: *Characteristics of the Parole Population, 1978* and *Parole in the U.S., 1979.*

In November 1980, the Bureau of Justice Statistics Advisory Board was established to review and make recommendations on activities undertaken by BJS. The Advisory Board will also formulate and recommend policies and priorities to the Director. Members of the Advisory Board are appointed by the Attorney General and include representatives of State and local governments, experts in the area of victim and witness assistance and other components of the justice system, representatives of professional organizations, members of the academic community, officials of neighborhood and community organizations, members of the business community, and the general public.

A number of significant improvements in criminal justice statistics are planned for 1981. *A Bureau of Justice Statistics Bulletin* series will cover the release of major justice indicators of an annual or more frequent periodicity as well as other statistical information which, while useful and of interest, is not collected annually. These publications will be four-page brochures, devoted to single topics. The intent of the *Bulletin* series is to make available objective information in nontechnical language about the state of the Nation with respect to crime and the administration of justice.

A data needs assessment strategy will be started within BJS to help plan how to meet the broad mandate to provide statistical information on all aspects of the criminal justice system. The strategy will include assessing current justice data needs, identifying the needs that are satisfied by existing statistical efforts, identifying the data gaps that exist, and recommending the methodology best suited to fill these gaps. A Federal justice statistics program will be initiated to collect and analyze statistical information concerning the operation of the Federal criminal justice system along with information concerning the prevalence, incidence, rates, extent, distribution, and attributes of Federal crimes.

Finally, the Federal data collection relationship with State and local governments will be revised. Under previous legislation, Federal support in criminal justice statistics was focused on assistance to the States for the creation and development of capabilities in the collection, processing, and analysis of data for their own purposes. Support will continue in 1981 with primary emphasis to be placed on cooperative efforts through which data will be provided by the States to BJS for use in national compilations. The effort will include the development of standards and formats to meet State and local as well as national needs.

The Uniform Crime Report (UCR) administered by the FBI is the other major criminal justice statistical series. The UCR program is a cooperative statistical effort of over 15,000 local, county and State law enforcement agencies nationwide. Arson was added to the index of reportable crimes by congressional mandate, and although not all UCR participants were able to provide figures on the crime for the complete calendar year of 1979, the 1980 submission rate is expected to show improvement. A change was also made in 1980 to the use of standard Federal race and ethnic categories for the collection of arrest and homicide statistics.

In its role as a clearinghouse for the collection of law enforcement information, the FBI compiles and publishes various types of crime related data in semi-annual releases and annual publications. In 1980 publications derived from the UCR included the 1979 editions of *Crime in the United States, Manual of Law Enforcement Records,* and the *Uniform Crime Reporting Handbook.*

In 1981, it is expected that data on parental kidnapping will be added to the UCR program in response to a recent legislative requirement. Moreover, the FBI is expanding its statistical analysis capabilities and is planning a series of crime-specific research projects.

EDUCATION STATISTICS

The National Center for Education Statistics (NCES) collects and analyzes statistics on the condition of education in the United States and assists States and local education agencies in improving their statistical systems. In recent years, Congress has also required NCES to develop a national vocational education data system, conduct a continuing survey of the supply and demand for educational personnel, produce profiles on the degree to which States are achieving equalization of resources for elementary and secondary education, and coordinate education data acquisition activities of all Federal agencies.

NCES supports a wide range of activities to: provide policy-relevant data on such issues as access of minorities to postsecondary education, impact of Federal programs on the disadvantaged, education and employment, and high school dropouts; assist State and local education agencies in developing efficient information systems; provide comprehensive information services to the education community and the public; and reduce paperwork burden in education imposed by Federal agencies.

Elementary and secondary education statistics are collected from several sources. A major program of compiling statistics on elementary and secondary schools, students, staff, and financial characteristics is conducted each year in cooperation with each State education agency. This program provides information about fall school membership, the number of high school graduates, the number of teachers and other school staff positions, revenues from Federal, State or local government sources, and expenditures for administration, instruction and other purposes. Summary statistics for each State and the 20 largest cities are received and published. Similar data are received for each of the 16,000 school systems in the United States. Also, since 1977, the membership, number of teachers, location, and grade span of the 90,000 public schools have been collected to provide a basis for statistical sampling as well as for research.

In addition to the statistics collected from State education agencies, limited information for private schools was collected for the years 1976 through 1978 and again for 1980. The data were collected for NCES through the cooperation of the National Catholic Education Association and, except for 1980, the Council for American Private Education. Over the first 3-year period of data collection, a complete list of all private schools was assembled to establish the universe for the first time. The 1980-81 study will maintain and expand the census of private schools in the United States. The information collected covers size, grade span, religious affiliation and limited financial characteristics.

A persistent concern in education is the disparity in resources collected and distributed among elementary-secondary school districts. To ascertain

the extent and significance of these disparities, Congress, in the 1978 Education Amendments, required NCES to collect uniform data from the States on financing public elementary and secondary education. From these data, NCES will produce a composite profile of each State every other year to show the degree to which equalization of resources among the school districts has been achieved. The profiles also show the varying impacts of tax structures which support educational expenditures. The first report was published in 1980 using available statistics. Future reports will utilize data collected from the States.

NCES reports annually to Congress on teacher supply and demand. This report is based on a survey of teacher demand taken from local education agencies and a survey of college graduates newly qualified to teach. The report covers changes in the size of the surplus of newly qualified teachers and the need for teachers in particular fields of study. It also examines how graduates who are newly qualified to teach fared in the labor market compared with other college graduates. Future reports will examine emerging occupations for education graduates and the ability of schools to find qualified candidates for teaching positions.

The NCES program in higher education uses the Higher Education General Information Survey (HEGIS), which provides current and trend data, complemented by special studies of recent college graduates, adult education participants and race/ethnicity. This data base includes a complete census of public and private institutions of higher education, including community and 2-year colleges, their enrollments, characteristics, degrees awarded and financial information.

In 1981, the basic NCES survey program will be augmented by biennial studies addressing access to higher education and student migration patterns. Strong interest has led to the consideration for 1982 of a survey to determine accessibility of institutions for handicapped students. The survey will build on the 1978 model which established cost estimates for modifying physical facilities in colleges and universities for the handicapped. In addition, NCES will conduct the survey of student residence and migration.

To provide data on adult education NCES has developed a program combining reports from individual participants with surveys of institutions sponsoring these activities. The surveys are repeated on a regular cycle to provide trend data on changes in students and programs.

NCES sponsores a triennial supplement to the Current Population Survey conducted by the Bureau of the Census, which queries the 56,000 households in the survey on participation in adult education. The study provides demographic data on participants in adult education, on full-time adult students and on adult nonstudents. It also offers data on the characteristics of courses and activities taken in adult education.

Complementing this study of individuals are studies of organizations offering adult education including colleges and universities, community agencies, home study institutions, and free universities and learning referral centers. Presently, a literature search is being conducted in anticipation of an upcoming survey on programs offered by nonschool organizations (business, industry, labor unions).

The Education Amendments of 1976 (Public Law 94-482) required NCES to develop, implement, and operate a national Vocational Education Data System (VEDS) to provide reliable data on vocational students, programs, program completers and leavers, staff, facilities and expenditures. VEDS provides information on vocational education conducted through State-plan programs (under the Vocational Education Act) in the public schools and various postsecondary institutions. It includes a reporting system based on collecting State–aggregate data, according to standard definitions and uniform data elements. The system also provides information on the numbers of persons being prepared in various occupational fields for use by State occupational information coordinating committees and economic development councils. VEDS implementation began with the collection of data for the 1978-79 reporting year; 1979-80 data have recently been received and are being processed.

In 1980, the first data were collected on recent vocational education program completers and leavers. A sample of these students will be followed to determine the extent to which program completers and leavers find employment related to their training. A sample of employers will be asked to assess employee job competency and work attitudes.

In 1980, NCES initiated the data collection for a second longitudinal study, following the pattern of an earlier study of 1972 high school seniors. The new survey, in part, covers the high school class of 1980. Thus, the survey will allow a detailed comparison of the two senior classes and an assessment of the changes and problems that have arisen since 1972. The new survey also addresses many new elements in the educational process, and includes the sophomores of 1980 as well as the seniors. These data were made available in February 1981. The study will measure the economic returns of postsecondary education, examine access to postsecondary education for minorities, and delineate the need for financial aid. By ultimately comparing the results of the two studies, researchers can determine how hopes, plans and outcomes respond to changing conditions.

NCES also collects data on learning resources outside the formal educational system. In this capacity, NCES works with the Office of Libraries and Learning Resources, the Corporation for Public Broadcasting, and the Institute for Museum Services to provide basic data and determine how data collection can help solve resource problems. Current plans include lengthening the time span between basic surveys of libraries to permit new surveys to be conducted on library networks and consortia, private school library media centers, and research libraries. Collection and reporting of information on the use of educational television in elementary and secondary schools is being extended to higher education. NCES is also conducting benchmark surveys of museums to assist the Institute of Museum Services.

As a step toward improving data quality, NCES is conducting a series of validation and quality assessment studies which are provided to data users to indicate both the reliability and the limitations of the data they are using. Further, the studies provide a basis for determining where methodological improvements are needed. Validation studies of higher education fall enrollment and earned degrees surveys were completed in 1980 and studies of higher education finance, and faculty surveys were conducted. A quality assessment study for the national vocational education data system was initiated in 1980, and studies of data collected on residence and migration are planned.

Quality assessment activities are supported by methodological research on the development of new classification structures and on imputation for missing data. Methodological work has also been directed to the development of indicators of the education status of minorities and of the financial status of institutions of higher education. Additionally, NCES will expand its indicator efforts to encompass educational needs of school districts.

NCES helps States improve their statistical systems through a program of capacity building grants. The program which was initiated in 1978, provides grants to States in elementary-secondary, vocational, and postsecondary education for activities proposed by the States to improve statistical and data processing activities. Grants may focus on reducing data burden; improving the timeliness of data reporting; enhancing the quality, comparability, or utility of data; increasing a State's analytical capability; improving the flow of information to local or other educational agencies; and similar objectives.

The State personnel exchange, provided by the elementary, secondary and postsecondary coordination networks, is another federally funded program designed to improve State statistical systems. This program encourages States to give technical assistance to one another. Funds are provided to support travel costs for State employees to review the methods or solutions used by other States in data collection and management information systems.

The Office for Civil Rights (OCR) in the Department of Education collects data and produces reports and analyses on the status of civil rights at various levels of education. Data on racial/ethinic, sex, and handicapping characteristics are collected through a series of national surveys.

The elementary and secondary school survey has covered a sample of schools annually for 1968 through 1974, and biennially for 1976 through 1980. In the earlier years most of the information dealt with such issues as desegregation/racial isolation, faculty placement patterns, and dropouts. These issue areas were derived from authority given the Office for Civil Rights (then in HEW) for enforcing Title VI of the Civil Rights Act of 1964.

With the passage of Title IX of the Educational Amendments of 1972 (prohibiting sex discrimination) and Section 504 of the Rehabilitation Act of 1973 (prohibiting discrimination against the handicapped) questions addressing these concerns were added. At the present time, issues concerning

traditionally single sex educational activities such as physical education, interscholastic athletic teams, industrial arts, and home economics are included. Also, information is collected on the "mainstreaming" of handicapped children into regular classrooms, building and classroom accessibility for handicapped children and the rate at which handicapped children who have been identified as requiring special education are receiving such services.

The higher education data sets cover the universe of higher education facilities and are done in conjunction with the HEGIS series conducted by the National Center for Education Statistics (NCES). This information covers racial/ethnic and sex characteristics at different degree levels for a range of different subject areas. Modifications in the survey instruments to include data on the handicapped are currently under development.

In 1979, the Office for Civil Rights also collected statistics on the universe of Vocational Education and Special Purpose Schools. Information from these one time surveys is available on racial/ethnic, sex and handicapped characteristics by services and type of institution.

ENERGY STATISTICS

During the last 3 years, mission organizations of the Department of Energy (DOE) have assumed increasing responsibility for meeting their own data needs, but the Energy Information Administration (EIA) continues to be the largest supplier of energy statistics. EIA's 1980 program and accomplishments were dominated by detailed statutory requirements and the stringent and sometimes conflicting demands of the energy policy debate.

In response to congressional criticism, in 1980 EIA completed a program to collect directly all the domestic petroleum data for the *Weekly Petroleum Status Report* which was initiated in 1979 to meet the demand for the latest petroleum data during the Iranian Revolution. The report originally relied heavily upon production, stocks, and import data supplied by the American Petroleum Institute (API). In a parallel effort, EIA developed a short term forecasting capability. In order to address very near-term issues on a comprehensive, frequent, and regular basis, EIA constructed an integrated short-term data base and forecasting system which produces a quarterly publication, the *Short Term Energy Outlook,* that gives policymakers a range of possible results of varying energy scenarios.

The Oil and Gas Information Survey was designed to meet the requirement of the DOE act of 1977 for an annual report on domestic energy supply. Until this year, the information could only be found in the unverifiable oil and natural gas reserves estimates published jointly by the API, the American Gas Association (AGA), and the Canadian Petroelum Association in *Reserves of Crude Oil, Natural Gas Liquids, Natural Gas in the United States and Canada as of December 31, 1977.* The first Government-verified report on U.S. crude oil and natural gas reserves and production, published by EIA, provided information for 1977 and 1978; information for 1979 will be published in 1981. The EIA estimates of total proved 1978 oil and gas reserves exceeded trade association estimates by 11 percent and 6 percent, respectively, but State level components differed substantially. API and AGA plan to terminate their reports after the 1979 edition.

The Financial Reporting System is also mandated by the DOE act which requires the establishment of a system to collect information on, and report the financial structure of, energy producing industries. In 1980 EIA developed and published the first two of these annual reports covering 1977 and 1978. The reports provided a profile of the major firms in the energy industry, disaggregated by firm size, energy source, operating segment, and geographical location. *Quarterly Profits* reports and a review of foreign direct investment were also published for the first time.

For the third successive year EIA has fully complied with the Federal Energy Administration Act mandate for an annual report to Congress and the President on the current and projected energy situation. The first volume describes the organization of EIA and highlights 1979 activities. The second and third volumes, respectively, are a compendium of energy statistics and an analytical treatise projecting future energy trends, and likely effects of those trends on energy supply, demand, and price.

The Consumption Data System is the first comprehensive effort to measure and report end-use energy consumption in all sectors. This information is of great importance in measuring and

evaluating the impact of energy conservation in residential and nonresidential buildings, in industry, and by States. The first reports from the residential survey and from the nonresidential buildings survey were published in 1980. Also, in 1980, data on vehicle fuel consumption, miles driven and the efficiency of vehicle performance on the road were published. A continuing personal transportation series is planned on both an annual and a quarterly basis. The Emergency Energy Conservation Act calls for an ambitious data collection and interpretation effort in order to support the setting of voluntary fuel consumption targets for the States. Gasoline and middle distillate monitoring programs are being developed to provide monthly information, by State, on the consumption of these fuels.

The Energy Policy Study performed by EIA at the request of the Chairman of the House Interstate and Foreign Commerce Subcommittee on Energy and Power compared current energy policy to an alternative of reduced government intervention. The study, which focused on the extent to which government energy programs offset one another, was reviewed from the different perspectives of leading analysts at a symposium sponsored by EIA.

The Information Validation Office continued its lead role in EIA quality assurance and improvement efforts. In 1980, four of EIA's most important data systems were examined and recommendations for improving the quality of the data were offered and implemented. The four systems are: Capacity of Petroleum Refineries; Natural Gas Curtailments; Prime Suppliers; and Joint Petroleum Reporting. In May 1980, EIA published *A Preliminary Assessment of the Accuracy of Energy Information Administration Data Related to Volumes of Petroleum.* The study substantiated the accuracy of the petroleum data collected, verified and published by EIA on an annual basis.

The control of paperwork burden also continued to receive priority attention within EIA. By decreasing the number of forms, the frequency of response, the number of respondents, and the amount of information requested, EIA has reduced respondent burden by more than 45 percent for those data collections in existence in 1977. Since 1977, even though EIA has initiated legislatively mandated collections of crude oil and natural gas reserves data, financial and operating data about major energy companies, and data required to implement the National Energy Act, total respondent burden has increased by only 16 percent.

EIA has developed several tools to aid users in locating and using EIA products. The Federal Energy Data Index (FEDEX), a computerized bibliographic data base, provides ready access to reference information concerning statistical tabulations by Federal, State, and local government agencies, provide industry, research institutes, and other members of the energy information user community. Document-level abstracts of EIA publications are provided in the *EIA Publications Directory,* and the *EIA Data Index* contains table-level abstracts. The *Energy Information Referral Directory* provides information on energy program organizations, program managers, and program descriptions.

In 1980, DOE adopted a comprehensive disclosure policy developed under EIA leadership over a period of 3 years. The policy provides limited confidentiality of statistical information consistent with the mandatory disclosure policies of the DOE act and other energy statutes. EIA's limited authority to provide confidential treatment for statistical data contributed to the persistent controversy surrounding planned surveys of industrial energy consumption and made necessary some agreements for independent data collection by other DOE components.

The impact of deregulation on energy data collection presents EIA with a number of critical problems to be solved in 1981. For many years the existence of data-intensive energy regulatory programs encouraged the design of statistical programs around this regulatory base. Regulatory requirements for microdata also made feasible some statistical strategies which might not otherwise have been considered. EIA's most important and challenging activity in 1981 is decoupling needed statistical series from data systems designed to support regulatory planning and enforcement, and developing more efficient statistical concepts to satisfy more general needs independent of regulatory requirements. The reduction in regulatory data collection by EIA is one of the largest near-term program changes in any statistical agency.

In 1980, the National Uranium Resource Evaluation program of the Office of Resource Applications published its assessment of the highest priority areas in the United States. This report covers areas which contain all known reserves and possi-

ble potential resources as well as most speculative potential resources. The program is now entering a second phase which will focus on the assessment of lower priority areas. Other Resource Applications programs provide information on uranium marketing and prices, and publications such as *Statistical Data of the Uranium Industry*, and *Abandoned Oil Fields of Texas*; information on private sector plans for uranium exploration, for development of western coal and for construction of new refinery capacity both domestic and foreign; and residential energy consumption and weatherization (Bonneville Power Administration).

DOE Environment and Defense Programs are both surveying the potential health effects of radiation, the former among workers at DOE contractor facilities and the latter among segments of the general population who may have received low-level exposures due originally to weapons testing in the 1950's. The Environment Office also monitors and reports sales of special radioactive materials for medical, industrial, and research uses.

DOE's contractor-operated National Laboratories maintain statistical staffs to support nuclear research and production, and other Federal missions. Current work includes reactor safety analysis and reliability problems, and discriminant analysis to locate uranium resources; analysis of oil and gas lease data and leasing strategies; and numerous projects in biometry, toxicology, life sciences experiments and environmental sampling. The sophisticated computer facilities required for the research mission also accommodate complex modeling efforts and the development of analytical techniques for large data bases.

Outside DOE, the Census Bureau expanded its reimbursable program of energy data collection in support of EIA, the Bureau of Labor Statistics is planning some improvements in energy price data, and the U.S. Geological Survey plans to expand its assessment of coal resources. The Central Intelligence Agency continues to publish its very current *International Energy Statistical Review* which is now complemented by EIA's resumption of the corresponding annual series. Energy analysis in other agencies, particularly macroeconomic analysis of energy inputs, is both scattered and limited.

ENVIRONMENTAL STATISTICS

The usefulness of Federal statistics for addressing broad environmental issues was reexamined in 1980. The Environmental Protection Agency (EPA) attempted for the first time to test the capabilities of its large descriptive data bases to support policy-oriented environmental assessments in addition to narrower program analyses. This effort underscored numerous weaknesses in EPA's monitoring tools for evaluating the state of the environment or quantifying the overall effect of agency programs.

On a broader front the Council on Environmental Quality (CEQ) and the State Department issued the Global 2000 Report assessing the likely world environment in the year 2000. The associated technical report summarizes a 3-year review of data and analytical capabilities, particularly forecasting capabilities, of over a dozen Federal agencies. With the exception of population, climatic, and economic data, the information available for policy analyses was found to be fair to poor. In addition to uncertain or questionable data quality, measurements were not uniform over space or time and many time series were not optimal for preferred analytical models. Models used by different agencies contained structural conflicts or used incompatible values of critical parameters. In addition many of these models accommodate only a single set of assumptions clearly presenting a barrier to useful comparisons.

In 1979, EPA established a committee of Deputy Assistant Administrators (DAA) for environmental monitoring and information management. During 1980, the DAA committee's activities focused on ambient monitoring, source monitoring, the Mandatory Quality Assurance Program, the Multimedia Toxic Data System (TOXET), a clearinghouse for environmental data, and capital budgeting for measurement instruments in laboratories.

A pilot ambient environmental assessment of air, water, and pesticides was completed in Feburary 1980. The assessment resulted in a number of recommendations for improving monitoring and data management. Programs offices then began preparing monitoring strategies for air, water, and toxics. The strategies are being implemented and a monitoring strategy for groundwater is being developed. A second environmental assessment, to be completed in early 1981, will include drinking water, groundwater, and toxic substances.

The first annual status report from the Office of Research and Development's Mandatory Quality Assurance Program was completed in October

1980. Priority activities for 1981 include completing development of minimum criteria to be met by EPA units, providing training and technical support to program and regional offices, and overview auditing of program offices, regional offices, agency contractors and grantees. This program applies to all EPA internal work, and interagency agreements involving environmental measurements. It is designed to promote consistent quality assurance procedures among mission programs and to establish quantitative goals for precise and accurate measurement, but does not as yet address more general problems of estimation.

Ambient air monitoring regulations, issued in 1979 set January 1, 1981 as the date for completion of the National Air Monitoring Stations (NAMS) network, and January 1, 1983 as the date for completion of the State and Local Air Monitoring Stations (SLAMS) network. The revised networks were designed to support a clear set of estimation concepts as well as provide needed improvements in measurement quality. The total number of NAMS monitors required is approximately 1,272, 95 percent of which are operational. The total number of SLAMS monitors is approximately 5,550. Negotiations have started with the States for defining the SLAMS network within the context of statutory State Implementation Plans. To date EPA has channelled over $100 million through air quality program grants to defray operating and capital costs of ambient air monitoring networks.[1] Regional, State and local agencies have borne nearly twice that cost. The streamlined NAMS/SLAMS networks will significantly reduce the non-Federal burden.

The National Water Quality Surveillance System includes some 1200 stations representing a cross section of land use categories. One thousand of these stations are used in the new Basic Water Monitoring Program. In this program, States collect and evaluate data which are submitted to EPA for the biennial National Quality Inventory Report to Congress. Complementary data on toxic pollutants are collected through EPA Regional Offices.

Another approach to the data quality problem is being implemented by EPA's Office of Pesticides and Toxic Substances (OPTS) in the TOXET system for multimedia toxic chemical data. TOXET is restricted to well-documented, high quality toxics data. This strategy avoids the "quality-neutral" approach of the Registry of Toxic Effects of Chemical Substances maintained by the National Institute of Occupational Safety and Health and emphasizes the gaps in current knowledge. Data are being reviewed and entered into the new data base which is expected to become an important monitoring tool for toxic chemicals across all EPA programs.

OPTS also continues to lead an interagency effort to develop a Chemical Substance Information Network. Most of the information management problems of the network have been solved in principle, but some issues still present barriers to the ultimate utility of the system. Questions of intellectual or proprietary rights inherent in some critical information still resist resolution. The simple chemical "identity" matching principle which is fundamental to the network may not span the chasm between hard physical facts and soft biological inferences in a manner which is fully useful to decisionmakers. Physical and chemical properties can be logically identified within an idealized "pure" chemical substance while biological tests (e.g., feeding experiments) deal with empirical associations with real (and thus impure) substances.

A clearinghouse has been established by EPA for compiling a descriptive inventory of the environmental measurement data bases and mathematical models maintained by EPA. Its purpose is to establish a central reference and referral source for all EPA environmental data. Responses to inquiries from all sources will be made by searching an online automated inventory. The system will provide full descriptions of data bases and the names of agency staff responsible for data management. As of December 1980, the inventory contained 320 data bases and 157 models. Additional data bases and models will be compiled and added to the inventory during 1981.

A more management-oriented inventory was created in the course of preparing EPA's first comprehensive account of reporting burden. The inventory was reasonably complete with the exception of recordkeeping requirements, but the quantification of burden was much less complete. With some exceptions, EPA initial estimates included only the burden associated with the final transmission of information to the agency, ignoring the

[1]These funds are not included in Table 1. Beginning in 1981 an estimate of the portion of grant funds for these purposes will be included in the EPA total of obligations for statistical programs.

processes of data acquisition, data reduction and testing for physical, chemical, and biological parameters to be reported. In many cases these larger components of burden had never been estimated. Detailed analyses of a few isolated cases showed total respondent costs exceeding initial EPA burden estimates by factors from 10 to 50. The poorest estimates were those associated with large, descriptive data bases.

In 1980, EPA invested both in-house and contract resources in economic and statistical evaluations of proposed regulations. Economic analyses, sponsored by the agency rather than the advocating program, contributed both to the internal decision process and the public debate. Statistical review of proposed water quality criteria resulted in the substitution of an approved methodology for a set of rigid national standards. This change gives States flexibility to deal more effectively with widely varying local conditions. A statistical critique of the information supporting one significant new regulation determined that the rule was not necessary, thus avoiding an estimated burden on the private sector of over $3.5 billion.

Efforts to improve the quality and coordination of statistical work in EPA continued in 1980. Plans are being made for a cooperative program with the American Statistical Association to complement in-house training courses already provided. Centralized technical assistance coupled with upgraded program staffs and improved interagency coordination have produced some excellent survey designs. A Statistical Policy Committee consisting of senior program statisticians now meets periodically to discuss data collection and analysis methods and to identify problems requiring agency-wide attention.

GENERAL ECONOMIC AND FINANCIAL STATISTICS

Several agencies provide statistical series used for macroeconomic analyses of growth, employment and inflation, and studies of tax programs, industry structure, and financial markets.

In its work on the economic accounts and other measures of economic activity, the Bureau of Economic Analysis (BEA) in the Department of Commerce assumed responsibility for preparing the high employment budget estimates and published new estimates in November 1980 which are based on an improved methodology. As noted in last year's report, monthly data were provided for the first time on personal outlays, saving, and the personal consumption expenditure deflator (an alternative measure of inflation to the Bureau of Labor Statistics Consumer Price Index). As part of the new program on nonmarket measures of economic well-being in the framework of the national accounts, estimates were published of the value of services of consumer durables and their rate of return; in 1981, analyses of the services of government capital and the allocation of nonmarket time within households will be published.

The periodic benchmark revision of the national income and product accounts was published in December 1980. Historical time series were revised to be consistent with the improved measures for the benchmark. The recent benchmark incorporated additional source data such as the BEA 1972 input-output tables, summary tabulations from the 1977 economic censuses, and tabulations of Internal Revenue Service audits of income tax returns. Definitional and methodological changes were introduced, such as a new treatment of reinvested earnings of foreign affiliates of U.S. corporations and U.S. affiliates of foreign corporations and improved techniques for deflating defense purchases to constant dollars. Additional information in new tables and more detailed data elements were also provided.

A comprehensive revision of the BEA plant and equipment expenditure survey, including the expansion to all nonfarm industries and new data separately for plant and for equipment, was published in October 1980. Two regional economic models were evaluated and used for subnational economic impact studies of the effect of Federal programs and other private and public development policies: (1) the National-Regional Impact Evaluation System which is composed of econometric models for each of the 50 States and the District of Columbia that link the economies of one State with other States and the U.S. economy was published; and (2) the Regional-Industrial Multiplier System of county level input-output industry multipliers was used for analyses of possible military base realignments. A forthcoming publication describing the system is entitled "RIMS II: Regional Input-Output Modeling System." Projections for selected years from 1985 to 2030 were published (November 1980) on personal income, population, and earnings and employment by industry of origin for States and local areas. In 1981

a test of a new "growth cycle" analysis of cyclical indicators based on long-term growth patterns will be released.

The Bureau of the Census has a wide range of economic statistics programs covering businesses and State and local governments. Most of the reports for the quinquennial 1977 economic censuses were published in 1980, and the remaining ones will be published in 1981. Planning for the 1982 economic censuses began over a year ago. The Census Bureau has been working with both Federal and private sector data users to identify priorities for the data collection. Companies which will be providing the data were also consulted to assure that the types of requested information are available. Several steps are being taken to reduce respondent burden, including shortening of forms, increasing respondent assistance, and the mailing of informational booklets to accountants to assist them in preparing census forms for their clients. The 1982 census data are expected to be released more quickly as a result of improved data processing.

All State reports for the Census Bureau's County Business Patterns (CBP) for 1978 were published. These provide local area data on industry payrolls and employment. All reports for the 1979 CBP data are planned for completion in 1981. Several reports were also published in 1980 and early 1981 on minority and women-owned businesses for 1977. These provide information on the number of firms, receipts, employment and payrolls for firms in which 50 percent or more of the owners are minorities or women. A supplementary report was also issued on the demographic and financial characteristics of women business owners.

Developments in other Census Bureau economic statistics programs are discussed in the sections on production and distribution, international economic statistics, housing and construction, and statistical standards.

The Internal Revenue Service initiated a comprehensive review of the content and data processing systems of the Statistics of Income (SOI) program in consultation with users in meetings with individual agencies and through the OFSPS-chaired Interagency Committee on Financial Statistics. The review, which is continuing in 1981, is aimed at focusing program activities on high priority items to accommodate the decline in the program's resources in recent years and to update data processing systems for speeding up data tabulations. Research began in 1980 on the feasibility of linking the quarterly employer's Federal tax return (Form 941) with business income tax returns to provide industry data on employment, wages, and firm size by number of employees for analyses of the employment impact of tax programs and for development of the Small Business Data Base discussed below. Another project initiated in 1980 calls for developing a system to provide detailed data on the windfall profit tax provisions for use in a mandated annual Treasury Department report to Congress on the effect of the Crude Oil Windfall Profit Tax Act of 1980. Work also continued on the program noted in last year's report on adding occupational information to the 1979 SOI sample of individual tax returns as part of a broader program involving a tie-in with the Social Security Administration's Continuous Work History Sample and for obtaining information from earning statements (Form W-2) including separate wages of each spouse on joint returns and the total number of jobs held during the year per taxpayer. This program is planned for completion in 1982 and will yield an enriched data base for analyses of the relationship of employment, income, occupation, health and other socioeconomic characteristics of the work force.

In addition to the regular SOI publications for individuals, sole proprietorships, partnerships, and corporations, several supplemental reports are available or nearing completion in 1980: domestic international sales corporation returns 1972-1974; foreign tax credit claimed on corporation income tax returns, 1974; U.S. corporations and their controlled foreign corporations, 1968 and 1972; estate tax returns, 1976; Individual Retirement Arrangements, 1976. Special reports scheduled in 1981 are: U.S. corporations and their controlled foreign corporations, 1974; foreign income and taxes reported on individual income tax returns, 1975; sales of capital assets reported on individual income tax returns, 1973; private foundations exempt from income tax, 1974-1978; and tax-exempt organizations, 1975-1978. Also, public use microdata files for the 1978 individual tax returns excluding business schedules with name and place identifiers removed were made available in December 1980.

As part of the Federal Trade Commission Improvements Act of 1980, the Federal Trade Commission (FTC) was required to submit a plan to

Congress by December 31, 1980 for reducing the reporting burden of the Quarterly Financial Report, with the plan to be implemented by October 31, 1981. The plan which was submitted to Congress includes a reduction in the number of small businesses in the sample and a simplification of the survey form. The plan was developed in consultation with Federal agencies through the OFSPS-chaired Interagency Committee on Financial Statistics, and with small businesses through the Small Business Administration and trade associations. OFSPS coordinated consultation with congressional staff in the development of the legislation to insure that the burden reduction would be balanced with the data needs of users and that the planned reduction would be designed according to professional statistical standards.

Following publication of the FTC *Annual Line of Business Report 1973* in 1979, legal challenges delayed publication for more recent years. These reports provide statistical aggregates on sales and costs of major product line categories for large diversified manufacturing corporations. The Commissioners are currently considering publication of the 1974 report. Publication of the 1975 and 1976 reports, which would follow the 1974 report, is also planned for 1981. Rules governing the confidentiality of the 1977 report data were adopted by FTC in 1980. Public comment was solicited on a proposal to adopt the same rules for the 1973-76 reports as well as for future line of business reports, and a decision on the confidentiality proposal is planned in 1981. For the FTC Corporate Patterns Report (CPR), a statistical comparison of the reported 1972 data with published Census Bureau data on industry concentration ratios was completed in 1980. When the comparisons suggested inconsistencies, respondents were asked to confirm data reported on the 1972 survey. Data tabulations for the 1972 report will be completed in 1981. Publication of the 1972 data is subject to approval by the Commissioners and company requests for confidential treatment. No plans to conduct a 1977 CPR have been announced.

The Bureau of Industrial Economics in the Department of Commerce was established in January 1980 to provide a focal point for economic research and analysis at the industry level. A study evaluating the economic performance of manufacturing industries at the 2-digit SIC level for the 1966-78 period was published in the summer 1980 *Industrial Economics Review*. Measures of industry "winners" and "losers" were based on trends in output growth, return to the factors of production, price increase and foreign competitiveness. The study also attempted to relate underlying factors that influence performance including various measures of production costs, capital usage, regulatory burden and industrial structure. As part of a long-term project aimed at improved understanding of the sources of productivity growth in individual industries, the analytical framework and data base design were completed and data development began in 1980. A staff paper entitled "An Introduction to the Industrial Analyses and Productivity Research Program of the Bureau of Industrial Economics" was published in November 1980. Several components of the manufacturing data base associated with developing consistent annual time series data over the 1958-78 period are planned for completion in 1981. These include data for shipments, inventories, output, plant and equipment investment, capital stocks, energy usage, rates of return and cost of capital. A study of the economic implications of increased defense expenditures will be completed in 1981.

The Federal Reserve Board (FRB) published the redefined money supply and liquid asset measures in 1980. FRB, Federal Deposit Insurance Corporation and the Comptroller of the Currency revised the condition reports of U.S. branches and agencies of foreign banks to bring them into closer conformity with the quarterly condition reports of U.S. commercial banks.

The Securities and Exchange Commission (SEC) undertook a comprehensive review of its statistical program. Extensive revisions were made in its statistical bulletin, renamed the *SEC Monthly Statistical Review*, including expanded and improved explanatory notes accompanying the data presentations, modification of the format, frequency and content of selected tables, inclusion of a "Statistical Highlights" narrative, and republication of executive summaries from recent SEC studies. An audit of the data base for Registered Offering Statistics showed a relatively low error rate of approximately 2 percent, and improved data processing is expected to lower the rate in 1981. Three broad-based canvasses were made of user views of the statistical program: (1) a questionnaire survey of uses, alternative sources, and needed improvements was sent to the OFSPS-chaired Interagency Committee on Financial Statistics, and (2) a *Federal Register* notice solicited the same type of in-

formation from the public, and (3) an announcement requesting user views in the March 1981 *Statistical Review*. The responses will be analyzed in 1981 to obtain guidance for the future development of the program.

The first phase of the development of the Small Business Data Base culminated with the recommendation for common size of business categories to be followed by statistical agencies in their future tabulations of business size data. The data base development is aimed at providing industry profiles by size of firm that can be used for analyzing trends in the relationship and sensitivity of the small business sector to the rest of the economy. Such analysis is needed for shaping and evaluating policies and programs to enhance the health of small business. This work is coordinated by two interagency committees (one for technical and the other for policy issues) chaired by the Small Business Administration (SBA) with staff support from OFSPS. A report on the first phase of the project was published in the August 1980 *Statistical Reporter*. Subsequently, a proposed new OFSPS directive on "Comparability of Statistics on Business Size" was published in the December 2, 1980, *Federal Register* and the December 1980, *Statistical Reporter* for public comment. The directive is planned for adoption in 1981 following accommodation of the public comment. The Small Business Economic Policy Act of 1980 directed SBA to develop and maintain a data base of specified economic indicators for the small business sector and to publish an annual report providing an analysis and interpretation of trends in these data. In the data base development, SBA utilizes data provided by other governmental agencies and the private sector rather than collecting the data themselves.

SBA has several contract research projects underway to develop longitudinal data that follow the performance of the same group of firms over time from Dun and Bradstreet files, the Social Security Administration's Continuous Work History Sample, and Department of Labor data. A contractor also developed measures of the share of the gross national product accounted for by small business and is extending these estimates to the State level.

Recognition of the complexity of adequately measuring seasonal movements has led to broad-based research in recent years. The interagency Technical Committee on Seasonal Adjustment chaired by OFSPS provides a forum for the exchange of ideas, problems, and progress in the research and applications of seasonal adjustment methods to Federal data series. A subgroup is studying criteria for seasonal adjustment in anticipation of developing guidelines for this process. The Census Bureau conducts continuing research in this area under the auspices of a joint fellowship program sponsored with the American Statistical Association. In addition, Census has an ongoing Committee on Time Series with members from subject matter and research divisions. The report of the committee of experts which has been advising FRB on seasonal adjustment methodology during the past two years is expected in 1981. Agencies have also offered courses to employees working in seasonal adjustment in the broad area of time series analysis which impacts on the methodology used in seasonally adjusting data.

Statistical agencies also modified their seasonal adjustment procedures for published data in 1980. The X-11 ARIMA (Auto Regressive Integrated Moving Average) procedure for the seasonal adjustment of a time series was used on a limited basis for published time series by BLS and BEA. This method forecasts the unadjusted time series a year into the future by fitting one of three specific ARIMA models and then applies the X-11 programs for seasonal adjustment to the historic and forecast series. BLS adopted a new procedure of publishing seasonal factors for the household labor for the following 6-month period in place of projecting in January only for the calendar year. These ecting in January only for the calendar year. These procedures have stimulated several comparative studies at the Census Bureau of seasonal adjustment methods, in particular, X-11, X-11 ARIMA, SABL (Seasonal Adjustment Bell Laboratories), and several model-based approaches. The studies will include comparisons of revisions where seasonal factors are forecast for varying time periods, for example, recalculating seasonal factors for every month, or for 1 month, 6 months, or 12 months ahead.

As noted in previous annual reports, OFSPS has coordinated the evaluation and implementation of the recommendations of the *Gross National Product Data Improvement Project Report* which involve several Federal agencies. While approximately one-fourth of the over 150 recommendations have been partially or fully implemented, many of these did not require additional funding. Requests for additional funding in the 1980 and 1981 budgets

were not approved by Congress. In order to focus more sharply on priorities for implementing the remaining recommendations, in 1980 OFSPS surveyed a sample of governmental and private users of the national economic accounts to obtain their priorities on the recommendations. These views will be used in providing guidance to statistical agencies for their 1983 budget planning which begins this spring.

The Joint Economic Committee published the *1980 Supplement to Economic Indicators* in December 1980. The *Supplement* contains explanatory text and historical tables for each series which appears in the monthly *Economic Indicators.* OFSPS coordinated and reviewed the preparation of the *Supplement;* the source agencies provided the text and the Council of Economic Advisers supplied the data tables.

In addition to the above work on specific programs, the OFSPS directives on governmentwide standards for statistical indicators were revised and updated. Directives 3 and 4 on compilation and release of principal Federal economic indicators were combined into one directive. Several clarifications were made, including the role of the Director of OFSPS in determining which indicators are subject to the directive and in granting exceptions to certain provisions of the directive. A review of the series which come under the directive will be made in 1981. Directive 5 on the base period of Federal general-purpose statistical index numbers was changed from the existing base of 1967=100 to 1977=100. For most index series the conversion to the 1977 base period is scheduled during 1981 and the first half of 1982. The schedule will be summarized in a forthcoming issue of the *Statistical Reporter.*

HEALTH STATISTICS

Health statistics policy for the Department of Health and Human Services (HHS) is coordinated through the departmental Health Data Advisory Committee (HDAC). HDAC is chaired in rotation by the Office of Health Research, Statistics and Technology (OHRST) located within the Public Health Service (PHS) and the Office of Research, Demonstrations and Statistics of the Health Care Financing Administration (HCFA). The Committee is responsible for annually compiling the *Health Statistics Plan,* for establishing health data standards within HHS and for advising the Secretary on health statistics issues.

The budgeted obligations for statistics provide a rough measure of the relative size of the various health statistics programs. The National Center for Health Statistics (NCHS), the Federal agency which has primary responsibility for the collection, analysis and dissemination of health and health care statistics on the U.S. population, accounts for about 30 percent of budgeted obligations for the HHS health statistical activities. The National Institutes for Health (NIH) together receive over a third of the Department's budget for health statistical activities. The budgets for statistics of these two agencies, combined with that of HCFA account for 80 percent of the HHS resources for health statistics.

The NCHS program focuses on general purpose, health policy statistics. Major projects include the National Health Interview Survey which produces information on health status and utilization of health services; the National Health and Nutrition Examination Survey which collects nutritional, physiological and diagnostic data through direct health examinations of a representative sample of persons in the U.S. population; the National Nursing Home Survey which produces information on services provided, staff employed, and expenditures incurred by nursing homes and the sociodemographic characteristics and health status of nursing home residents; the National Hospital Discharge Survey which produces demographic, diagnostic and surgical data on persons treated in the Nation's hospitals; the National Ambulatory Medical Care Survey which is the only source of information on care provided in private physicians' offices; the National Master Facilities Inventory which develops census-type data on the Nation's health facilities, their services and staff; and the National Survey of Family Growth which collects data on fertility, family planning, and infant and maternal health through household interviews.

In addition to these major surveys, NCHS is responsible through its Cooperative Health Statistics System for working with State agencies to produce health data at the national, State, and local levels; for providing technical assistance and for cooperating with other countries in matters related to health statistics; and for publishing the official vital statistics for the United States.

During 1980 the National Health Interview Survey's basic questionnaire on general health status and health care utilization was supplemented to collect more detailed information related to the

aged population. Special supplements addressing health insurance coverage and smoking habits were also added. NCHS has also been evaluating the potential use of telephone surveys as an adjunct to personal interview methods. Issues which have been addressed using the telephone survey include a survey of "Personal Health Practices and Health Consequences" and a survey on smoking practices.

The Cooperative Health Statistics System changed its emphasis from providing direct support for collection of specific data sets such as health manpower and facilities to assisting in the development of State statistical agencies. These agencies should have the capability to coordinate health statistical activities within the State and to respond to data requests from within and outside the State. Currently, 33 States have formally designated agencies to participate in this program.

Data collection for the National Medical Care Expenditure Survey (NMCES), conducted jointly by the National Center for Health Services Research (NCHSR) and NCHS, has been completed. During 1980, the first publications from the survey data were released by NCHSR as a part of its report series on the National Health Care Expenditures Study.

NCHS, in collaboration with the Health Care Financing Administration started the operational phase of the National Medical Care Utilization and Expenditures Survey in 1980. The survey is designed to provide information on utilization of health services, the breadth and depth of health insurance coverage, and implications of various financing and national health insurance proposals. The survey is designed to provide information to HCFA concerning its beneficiary population, including Medicare and Medicaid beneficiaries. This survey is based on the work done for the health expenditures survey and represents the next stage in development of this program.

In response to congressional mandates, NCHS has devoted considerable resources toward the examination of the potential of current and proposed data systems for investigation of environmental influences on health. Specific activities in this area include (1) a plan submitted to Congress for the collection and coordination of statistical and epidemiological data on the effects of the environment on health, (2) publication of guidelines for the collection and analysis of information necessary for determining the effects of environment on public health, (3) a planning study undertaken in collaboration with the Institute of Medicine of the National Academy of Sciences on the costs of environmentally related diseases, and (4) a study of the issues involved in establishing a Federal system to locate, assess, and treat individuals exposed to hazardous substances.

Special areas of emphasis for NCHS in 1981 will include:

- New analyses of existing data as related to environmental epidemiological health issues.
- Completion of the data collection phase for the National Natality and National Fetal Mortality Surveys. Examples of the types of data to be collected include information on the mothers' smoking habits, marriage and pregnancy history, education, income, health status of the mother, alcohol consumption, and electronic fetal monitoring.
- Beginning the next round of the National Family Growth Survey. For the first time the survey will include women 15-44 years of age regardless of marital status or pregnancy experience. Past surveys have been limited to women 18 years or older who had been married or had at least one pregnancy.
- Beginning the field work for a special round of the Health and Nutrition Examination Survey which will focus exclusively on the health and nutritional status of the Hispanic segment of the U.S. population.
- A child health supplement to the basic Health Interview Survey. The primary purpose of this supplement is to relate data on the current health status of children to information obtained from the parent about care of the child outside the family, prenatal care, health habits of the mother during the pregnancy, birth, growth and development data, behavior problems, and measures related to school performance.

NCHS also completed a major analytical effort in its fifth annual report to the Congress, *Health, United States, 1980*. This report provides a comprehensive review of the health of the Nation's people; the utilization of health resources; health professionals and facilities; and health care costs and financing. The report also contains a Prevention Profile which specifically addresses the prevalence, incidence, and trends of death and disability in the United States due to preventable causes.

Budgetary constraints during the past 2 years have affected NCHS's continuing health statistics program. Portions of the National Family Growth Survey, the Hispanic Health and Nutrition Examination Survey (HANES) and the Cooperative Health Statistics Program (CHSP) were postponed or cut back in 1980. Further reductions will be required in the National Health Interview Survey, the Hispanic HANES, and the CHSP in 1981. Vital statistics contracts, for example, will be cut back. There are currently no available funds to continue surveys of long-term care providers; the quality control program for the hospital discharge survey has been reduced and may be discontinued.

The National Institutes of Health (NIH) are the lead Federal agencies for biomedical research on the prevention, diagnosis, and treatment of disease. The statistical activities focus on two areas: estimates of the incidence, prevalence and cost of disease and epidemiological studies to test hypotheses relating to disease states. The National Cancer Institute (NCI) conducts or supports statistical activities on a number of specific conditions, such as bladder cancer, in collaboration with other HHS agencies. A national survey of public attitudes, knowledge and practices related to breast cancer will relate these data to information on cancer detection and medical consultation, to develop more effective ways of informing the public and health professionals about these conditions. Other studies will provide data on cancer incidence, variation in risks to subpopulations and the costs of cancer care to patients, insurers and agencies.

The National Heart, Lung, and Blood Institute conducts a variety of studies on the epidemiology of disorders such as sickle cell disease and cardiovascular disease, of which the Framingham Cohort Surveillance and Offspring Study is the most widely known. The Framingham heart study has been in continuous operation since 1948 and is now in its 15th cycle of examinations. The study has produced a number of major findings on factors associated with cardiovascular disease and has broadened the scope of inquiry to include stroke and other disorders. The other institutes in NIH conduct epidemiological studies and similar inquiries appropriate to their mission or area of interest.

The Health Care Financing Administration's (HCFA) statistical activities focus on the assessment of health care service delivery and related program issues, such as reimbursement methods, coverage, eligibility and cost containment. Two efforts are underway to improve national medicaid statistics: the development of a statistical system based on Medicaid Quality Control Sample procedures, and an investigation of State Management Information System files from a research perspective. In addition to analysis of data collected in administrative records, the HCFA Office of Research, Demonstrations and Statistics (ORDS) is developing an analytical plan for assessment of National Medical Care Utilization and Expenditures survey data from the perspective of Medicare and Medicaid beneficiaries. A data tape should be available during 1981 to support preliminary analyses. ORDS is also participating in an HHS effort to develop long-term care surveys for the mid-1980's. One survey will acquire disability and other information from households while another will collect information relevant to long-term care institutions and institutionalized persons. The long-term care statistics plan is reviewed in greater detail in the crosscutting section on long-term care.

HCFA also preapres estimates of national health expenditures by sector of health care and channels of payment, differences in personal health care spending by age groups, and private health insurance premiums, benefit payments and enrollment.

A number of changes in administrative reporting systems will improve the availability of health related statistics. In 1980, HCFA continued development and evaluation of a uniform hospital billing form in cooperation with the American Hospital Association. It is anticipated that the billing form will be used by major third party payers after development and review are completed in 1981. HCFA is continuing the development of a uniform system of financial reporting for health care and service facilities, as mandated by Section 19 (P.L. 95-142) of the Medicare-Medicaid Anti-Fraud and Abuse Amendments. A regulation is expected to be published in 1981. HCFA has also initiated a contract to develop and test an automated central data collection, processing and distribution system for hospital cost report data. This system is designed to accept monthly hospital cost report data from fiscal intermediaries for all certified hospitals and to provide a data base suitable for analysis and program monitoring.

The primary mission of the Center for Disease Control (CDC) is to monitor disease patterns and to provide assistance to State, local, and other health related institutions in controlling disease

and preventing its reoccurrence. Data are collected and published on the incidence of hepatitis, botulism, tuberculosis, and other communicable or preventable diseases. CDC's National Institute of Occupational Safety and Health (NIOSH) initiated the second National Occupational Hazard Survey in 1980, to identify potential health hazards used in industries and the occupational groups exposed to these hazards.

National data sets from other agencies are being adapted for health surveillance through the identification and monitoring of diseases associated with work related hazards. These data sources include the NCHS Health Interview Survey, the Social Security Continuous Disability History Sample, and State Vital Record Systems. During 1980, four Surveillance Cooperative Agreements were funded by NIOSH to increase the use of the State based mortality data systems. NCHS, NIOSH, and the Bureau of the Census are cooperating in the development and adaptation of vital health statistics records for occupational health studies. Current activities are directed to the development and implementation of a system of occupation and industry coding for decedent employment information.

The Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) has responsibility for national research, training and services in the areas of alcoholism, drug abuse, and mental illness. Its three component agencies, the National Institute of Mental Health (NIMH), the National Institute of Alcohol Abuse and Alcoholism (NIAAA) and the National Institute on Drug Abuse (NIDA), each engage in a number of significant statistical activities directed at determining the characteristics of facilities, programs and personnel providing services; the numbers and characteristics of persons served by their program funds; charges and sources of payment for services; and assessments of the effectiveness of services provided.

Major initiatives in NIMH include the development of the Epidemiologic Catchment Areas (ECA) and the three ECA studies based on the new Diagnostic Interview Schedule of psychiatric diagnoses. NIAAA activities include a variety of data collection systems, such as the National Alcoholism Program Information System, the State Alcoholism Profile, the Alcohol Epidemiologic Data System and the Survey of Youth at Risk for Alcohol Problems. NIDA's major data systems include the Client Oriented Data Acquisition Process, the National Drug and Alcoholism Treatment Utilization Survey, and the Drug Abuse Warning Network.

The statistical activities of health program agencies are closely related to their program interests and activities. The Food and Drug Administration (FDA) engaged in special studies on nutrition education and knowledge, food additives usage, product labelling and patient-packet inserts, adverse reactions to cosmetics, and prescription drug advertising. The Health Resources Administration (HRA) is responsible for identifying health resource problems. To carry out its mission effectively, HRA requires extensive data on the health status of the population, the accessibility to and use of health care services, and measures of the Nation's health planning and resource development capacities, especially its manpower production capacity. The Health Services Administration (HSA) has responsibility for programs that deal with service delivery to statutory beneficiaries and medically underserved populations. Their statistical activities are primarily oriented to management information systems based on ongoing programs, such as the Inpatient Data System and the Ambulatory Care Data System.

The Office of Health Research, Statistics, and Technology (OHRST) serves as the coordinative element for health statistics policy within PHS. OHRST includes the National Center for Health Care Technology, the National Center for Health Services Research, and the National Center for Health Statistics.

Other HHS health statistical activities are conducted within the Office of the Assistant Secretary for Planning and Evaluation (ASPE) and the Office of Human Development Services (OHDS). Several major statistical activities were undertaken or completed by ASPE in 1980: a Health Policy Model, the Rand Health Insurance Experiment and the preliminary statistical match between the Survey of Income and Education and the 1976 Health Interview Survey. The matched data from this project are being used as the data base for a Medicaid Simulation Model and an evaluation of the HFCA Mental Health Demonstration Program.

Several of the social service activities of the OHDS involve health activities and statistics; some of these programs were transferred to the recently formed Department of Education in 1980. These programs elements include: Title XX (family

planning, information and referral, health related services, homemaker services, and sterilizations); Vocational Rehabilitation (diagnostic services, types of disabling conditions, restoration and service outcome); Head Start (health screening, nutrition, immunizations, and handicapped children); Developmental Disabilities (diagnosis, treatment, maternal and child health, annual health planning, and mental health): and Runaway Youth (alcohol and drug abuse, venereal diseases, pregnancies, and medical-psychological and psychiatric services).

OHDS statistical activities include a variety of information systems and surveys on child abuse, child welfare and human services. Rehabilitation services were transferred to the Department of Education. The Administration on Aging conducts or sponsors several studies on service modalities for older persons, emergency services, Medicare supplements and long-term care services.

The Veterans Administration (VA) also conducts studies of users of VA medical and hospital services. These include such studies as the Preadmission Surgical Screening, Hospital Patients with Arthritic Conditions, Supervision of Surgery, the Psychiatric Drug Study and a variety of patient treatment and staffing studies.

The Occupational Safety and Health Administration (OSHA) conducts a number of statistical programs, in cooperation with the Bureau of Labor Statistics (BLS) and NIOSH. The two major data collection programs funded by OSHA in 1980 were the Annual Survey on Occupational Injuries and Illnesses and the Supplementary Data Systems. The Annual Survey provides state and national estimates on the number of occupational injuries, illnesses and fatalities by industry and establishment size. The Supplementary Data System provides extensive detailed information on the characteristics of injured workers and of injuries from State workers' compensation records. Studies have also been undertaken to obtain more information on how accidents occur.

HOUSING AND CONSTRUCTION STATISTICS

The Department of Housing and Urban Development (HUD) and the Bureau of the Census are the principal sources of housing and construction statistics and cooperate extensively on housing and construction statistical programs. The Census Bureau is responsible for all phases of the decennial census of housing, the quarterly vacancy survey, and construction statistics. In addition, the Census Bureau conducts numerous housing survey programs for HUD.

Within HUD, the Assistant Secretary for Policy Development and Research (PDR) has a major responsibility for housing statistics of general interest. Continuing programs sponsored by PD&R include the Annual Housing Survey (AHS) and surveys of housing completions, sales, rentals and mobile home placements. During 1980 data were collected for the eighth year of the national AHS and the seventh year of the Standard Metropolitan Statistical Area (SMSA) program. Supplements to the national survey in 1980 included investigations of energy conservation in housing, condominiums and cooperatives, mobile home characteristics, and journey to work. The 1980 national AHS program also included the Components of Inventory Change (CINCH) survey which previously was part of the decennial census program. CINCH collected data on the disposition of the base year inventory of 1973 and the sources of the 1980 housing inventory.

The next cycle of the national Annual Housing Survey will be conducted in 1981. Supplements will repeat the condo-coop and journey to work sections, and add questions on neighborhood quality and on housing equipment breakdowns. A modified CINCH will be included if funds permit, which would provide more current data on the process of change in the inventory.

The 1980 Housing and Community Development Act requires HUD to develop a data system by January 1982 which provides prices for new mobile homes, mobile home lots, and home and lot combinations for States and for individual SMSA's. HUD and the Census Bureau are exploring ways of modifying the ongoing Mobile Home Placement Survey to meet this requirement.

HUD is a major source of data related to residential finance. PDR produces a monthly data series on the insuring activities of private mortgage insurance companies and the HUD Office of Housing publishes data series on the mortgage lending activities of 11 major lending groups, and on prices and yields in the secondary mortgage market. Statistics on housing program operations and on community development activities are pro-

duced by the Offices of Housing and of Community Development.

The HUD Urban Policy staff has completed a comprehensive data collection and analysis for a sample of 50 cities, their urban counties and metropolitan areas. The data will be organized into economic, fiscal, social and housing sections. A report including indices of urban condition will be published in 1981 with the title "Annual Urban Indicators Pilot Report."

During 1980, PDR established three centers which provide researchers with access to various data bases. The Housing Research Data Center, operated by DUALabs (a private firm), provides direct access to computer facilities for researchers wishing to analyze data from the Experimental Housing Allowance Program (EHAP). EHAP was initiated in 1970 to test the concept of providing direct cash assistance to low-income households to enable them to live in suitable housing. The files consist of survey and operational data collected between 1973 and 1979 on the use of housing allowances, the impact on housing markets, and program administration.

A second center is operated for PDR by the Center for the Social Sciences at Columbia University to prepare documentation and customized longitudinal AHS data files on computer tapes for researchers. Longitudinal tapes drawn from the 1974 through 1977 national surveys and the 1974-5 through 1977-8 SMSA surveys are available.

The third center is called HUD USER, a private research information center sponsored by PDR. The center publishes bibliographies and summaries of recently published research reports, and provides reference searches on such topics as building technology, community development, energy conservation and utilization, housing assistance programs, services for the elderly and handicapped, and neighborhood rehabilitation and conservation.

In the field of construction statistics, the Census Bureau provides current estimates of building permits issued; housing starts; the value of residential construction activity including alterations and repairs; sales, sales prices and the unsold inventory of new single-family homes, and new housing units completed and under construction. During 1980, an improved methodology for the mobile home placements survey was instituted. The data are now obtained by identifying specific mobile homes from manufacturers' production lists and following the placement of the specific home by the mobile home dealer receiving the manufacturer's shipment. The change represents a significant improvement over the former methodology of sampling mobile home dealers.

The Census Bureau also conducted two special surveys of residential builders to determine the impact of the sharp rise in interest rates in the fall of 1979 and spring of 1980 on builders' housing construction plans. The results of the surveys were published in *Preliminary Report—New Housing Planned by Builders, October—June 1980,* December 1979, and *Special Construction Report—New Housing Planned by Builders, January—September 1980,* May 1980.

INCOME MAINTENANCE STATISTICS

The major Federal source of income maintenance statistics is the Office of Research and Statistics (ORS) of the Social Security Administration (SSA). In addition, the Office of the Assistant Secretary for Planning and Evaluation (ASPE) of the Department of Health and Human Services (HHS) is involved in selected statistical projects. Finally, certain activities of other agencies, including the Food and Nutrition Service of the Department of Agriculture, the Health Care Financing Administration of HHS, and the Department of Housing and Urban Development are closely related to income maintenance. The statistical activities of the last mentioned agencies are described in other sections of this report.

ORS statistical information is related to social security programs, including old-age survivors and disability insurance (OASDI), the supplemental security income (SSI) program and aid to families with dependent children (AFDC). A variety of statistics derived from the basic program data, including data on program participants and beneficiaries, are published on a regular basis in the monthly journal, *Social Security Bulletin,* as well as its *Annual Statistical Supplement.* The Office of Research and Statistics also provides projections of covered earnings and employment, taxable earnings and tax receipts for the OASDI programs. In addition to these program-related statistics, ORS has developed a number of other data series dealing with related social welfare expenditures, em-

ployee benefits, and income maintenance payments from non-social security sources.

The Office of Research and Statistics improved two basic categories of income maintenance data in 1980. Administrative data bases were extended and enhanced in a number of areas and progress was made in adding to survey data for use in research and policy analyses.

During 1980, administrative records were used for the first time to present benefit data for wives and husbands who are each entitled to their own retired worker benefits. The combined social security benefits for these couples are available for 1976, as well as the monthly benefit amounts and primary insurance amounts of the wives and husbands. The data are available by race, age of wife, and year of the wife's entitlement to benefits. Benefit data are also available for women retired workers who are not married to other retired workers.

Research data bases from administrative files are collected for each of the social security programs. One of the best known data bases is the Continuous Work History Sample (CWHS). The CWHS is composed of a number of different files, including employer-employee combinations and longitudinal information. Considerable improvements have been made in the files, including linkages to other data bases such as the Current Population Survey.

During 1980, incorporation of data on place of birth and Spanish surname into the CWHS was initiated and work continued on pilot linkages of the CWHS with other files. These included the linkage of 23,000 death certificates for 1975 to OASDI earnings and benefit data and mortality data. In addition, work continued on the linkage of CWHS records to earnings covered by OASDI for all CWHS decedents from 1956 to the present.

Other research data bases are derived from administrative files for the Continuous Disability History Sample and the Recipient Characteristic Surveys of AFDC families.

ORS supplements data derived from administrative files with data gathered from special surveys administered to particular program populations. These data provide the opportunity to answer more detailed questions than can be answered from administrative sources. In the old-age area, one of the major efforts has been the Longitudinal Retirement History Survey which is now approaching completion. The Survey of Low Income Aged and Disabled conducted in 1973-74 continues to be a major research tool for work in the Supplemental Security Income area.

The extent of ORS activities is illustrated by a selection of projects underway in 1980. In the family assistance area, the data file for the March 1979 Recipient Characterisitcs Study was completed in 1980. These AFDC data are compiled for ORS by the States from their own administrative records. Information obtained about AFDC families includes demographic statistics, program participation and financial circumstances.

Survey data tapes were completed in 1980 for a merged file of the 1972 Survey of Disabled and Nondisabled Adults and the 1974 followup interview file. The resultant merged file links baseline data on disability status, income and income sources, and work adjustment with changes over a two-year period in the disability and economic status of the working-age population, and entitlement under OASI and SSI.

A documented public use file for the survey of OASDI survivor families with children was prepared for distribution by the National Technical Information Service (NTIS) in 1980. The sample consists of 5782 families interviewed during 1978 in which at least one maternal or paternal orphan younger than age 18 was living with a surviving parent. An additional sample of 18,000 young survivors combines data derived from benefit records with demographic and economic characteristics collected by nationwide direct interview.

Data were published in 1980 in a supplement to the May 1979 Current Population Survey showing the extent of pension coverage among employed workers. In addition to securing information about workers covered under government or employer sponsored plans, the survey provides demographic and economic characteristics of workers taking advantage of Keogh and individual retirement account provisions.

Work continued on editing, file documentation and analysis of the last wave of the Longitudinal Retirement History Study which was conducted in 1979. Interviews have been conducted biennially since 1969 for a national sample of workers aged 58-63 in 1969. Since 1972 numerous reports and publicly available data tapes have encouraged analysis outside the Government as well as by the ORS research staff. Public use tapes for the 1979 data will be completed in 1981.

Developmental work for the Survey of Income and Program Participation (SIPP), which is cosponsored by SSA, the Bureau of the Census, and the Assistant Secretary for Planning and Evaluation, is one of the most ambitious efforts to be undertaken in the income maintenance area. Interviewing from the continuation subpanel of the 1979 Research Panel, the larger 1979 Research Panel and six samples drawn from administrative records in the Special Frames Study were completed during 1980. Results and experience from these and previous years' field work were used to make plans for the operational SIPP. In addition, work proceeded at four Research Centers concerned with income reporting, assets, and nonresponse/imputation. Preparation of public use tapes and documentation of the 1979 Research Panel was also initiated. In 1981, responses from interviews will be matched to administrative records and the feasibility of conducting such matches in the ongoing survey will be evaluated to suggest improvements in both questionnaire structure and processing procedures. Documentation of experience and results from the field test will be further extended.

The other Federal office with a broad concern with income maintenance statistics is the Office of the Assistant Secretary for Planning and Evaluation (ASPE) in the Department of Health and Human Services. ASPE is concerned with the analysis and development of statistics relating to particular policy issues. During 1980, ASPE shared responsibility for the management of the Income Survey Development Project for SIPP with ORS which will assume responsibility for the continuing operational survey.

Another major activity of ASPE has been the sponsorship of four income maintenance experiments beginning in 1967. Analysis of the Seattle-Denver Income Maintenance Experiment, which is the largest and most comprehensive of the four experiments, continued during 1980. The major purpose of these experiments is to test the impact of specific income-conditioned cash support on the work effort of poor and near-poor families. In addition to the voluminous research reports produced over several years, public-use computer tape files were provided in 1980, including one linking major variables from all four experiments.

ASPE conducted a survey of 4000 local welfare offices in 1980 to collect data on administrative methods and resources that will be in a large-scale analysis of payment error rates in the AFDC program.

Longitudinal data on the determinants of family income and economic status continued to be provided from the Study of Family Economics which completed its 13th year in early 1981. This study is providing data for the analysis of the economic changes associated with significant changes in individual circumstances. A 14th year is planned and about 6600 families will be interviewed.

ASPE, in cooperation with the HHS Office of Refugee Resettlement, initiated planning on a longitudinal survey of recently arrived refugee households which will examine their adaptation toward socioeconomic self-sufficiency in the United States. Variables such as ethnic origin group, occupational adjustment and use of available public assistance will be considered.

A survey of Cuban Americans in five major cities was concluded during 1980. The final report, "Evaluation and Identification of Policy Issues in the Cuban Community," includes survey and other findings on the sociodemographic characteristics of that population as well as on their social service, health, and education needs. The sample drawn from Miami, Florida, and Union City, N.J., was representative of Cubans in those cities and a small number of cases were interviewed in New York, Chicago, and Los Angeles.

In a second activity relating to Hispanics, ASPE is supporting an 18-month study aimed at the development of population estimates and projections of the Hispanic population to the year 1990 and for an analysis of the impact of such projections on HHS policy. The final report is expected in 1982.

INTERNATIONAL ECONOMIC STATISTICS

Several Federal agencies carried out statistical information programs in 1980 to provide data on balance of payments, foreign investment, foreign trade, and other areas of international economic activity. BEA continued its primary activity in international economic statistics by providing quarterly estimates of U.S. balance of payments accounts. New efforts to improve the accounts included studying the feasibility of directly measuring bank receipts and payments associated with earnings on foreign investments, improving seasonal adjustment procedures and measurements for U.S. merchandise exports and imports, and

completing an industry classification of international fees and royalties transactions. BEA also developed and tested an econometric model for forecasting merchandise trade.

In response to a sharp rise in the statistical discrepancy in the balance of payments accounts, an interagency work group was formed under the OFSPS - chaired Interagency Committee on Balance of Payments Statistics to examine the causes and possible remedies for the problem (the statistical discrepancy is an overall estimate of errors and omissions in recording transactions between U.S. and foreign residents in the balance of payments accounts). In early 1981 the work group visited several financial and industrial firms to discuss their reporting of international financial transactions. The work group will submit an interim report on its findings later in 1981.

Initial publications have been issued by BEA from two foreign direct survey activities implemented in the past 2 years. The results of the annual survey of foreign direct investment in the U.S. for 1977 were published and data for 1978 and 1979 will be issued during 1981. In addition, the January 1981 issue of *Survey of Current Business* contains an article on new foreign direct investments made in the United States during 1979 and 1980. A major publication will be issued in the spring of 1981 by BEA on direct investments held abroad by U.S. firms.

The Census Bureau and the Economics and Statistics Service (ESS) of the Department of Agriculture also published reports during 1980 on foreign direct investments in the United States. Data collected in the Annual Company Organization Survey were used by the Census Bureau to publish basic characteristics of foreign-owned firms. The data, which are on the larger multiestablishment U.S. firms, were tabulated by industry, geographic area, and the domicile country of the foreign parent organization.

ESS published the initial data obtained from mandatory reporting required under the Agriculture Foreign Investment Disclosure Act. These data showed that less than one-half of one percent of all privately owned U.S. agricultural land was foreign owned and that 46 percent of foreign-held agricultural land is forestland.

A major survey of portfolio investments in the United States owned by foreigners was completed by the Treasury Department and summary data for December 31, 1978 were included in a report to Congress in December 1980. A more extensive public report will be published in 1981.

One other major report on foreign investment in the United States was published by the House Committee on Government Operations during 1980. The report entitled *The Adequacy of U.S. Response to Foreign Direct Investment* included numerous conclusions and recommendations made by Committee staff on the statistical and analysis programs conducted by Federal agencies.

In the foreign trade area, the International Trade Commission (ITC) continued to collect data and conduct special studies for selected industries that requested import relief. A continuous program of monthly and annual statistics on synthetic organic chemicals was also conducted by ITC. The 1980 annual report includes a directory of manufacturers producing each of the covered chemicals and about 8,000 products.

The Census Bureau continued preparations for increased harmonization of international trade classifications. The Customs Service and the International Trade Commission are also active participants in this program which is led by the Customs Cooperation Council headquartered in Brussels, Belgium. The new system is expected to become the standard for commodity classifications for most of U.S. trading partners.

Legislation passed by Congress during 1980 continued confidentiality protection for Shippers' Export Declaration forms used to collect export trade data. Specified export cargo information will continue to be made available for users of microdata but the individually identifiable forms will be exempted from Freedom of Information Act requests as a result of this amendment to Title 13 of the U.S. Code.

A modification introduced by the Census Burau into the import statistics program during 1980 affected the handling of foreign trade zone statistics. Effective with January 1980 statistics, the imports which enter the U.S. customs territory via foreign trade zones have been displayed separately.

LABOR STATISTICS

The chief suppliers of national and regional labor statistics are the Bureau of Labor Statistics

(BLS) and the Bureau of the Census. In addition, the Economics and Statistics Service of the U.S. Department of Agriculture has responsibility for farm labor statistics.

In 1980, many of the new activities and accomplishments of these agencies were in response to recommendations of the National Commission on Employment and Unemployment Statistics (NCEUS). Among the steps undertaken to implement the Commission's recommendations was developmental work to link various labor market problems of workers to their economic status as measured by their earnings and family income. Improvements in procedures for seasonal adjustment of labor force data were introduced (see General Economic and Financial Statistics). The BLS also worked with the Bureau of the Census on plans for the post-1980 Census redesign of the Current Population Survey (CPS) and recommended changes in the questionnaire and method of enumeration.

The CPS planning activities concentrated on implementing necessary revisions in the concepts, methods and procedures for collecting and interpreting labor force data; the introduction of an unusually large population adjustment; and restructuring the CPS sample framework to incorporate information obtained in the 1980 Census of Population and Housing. Testing proposed changes in the method of CPS enumeration and questionnaire content progressed on schedule in 1980. These tests were conducted in the Census Bureau's Methods Development Survey, a monthly sample of 3,200 households in 8 areas of the country. The first phase of testing examined the impact of alternative collection methodologies such as telephone vs. personal interview and self vs. household respondent on labor force estimates produced from the CPS questionnaire. That work is completed and analyses of the full study should be available soon. The second phase of testing was initiated to evaluate alternative labor force questions. New and revised questions were drafted to identify and measure discouraged workers more objectively and to identify usual as well as actual hours worked by individuals. BLS also prepared test questions to collect monthly data on the school enrollment status of persons 16 to 24 years of age, to improve the measurement of full- and part-time jobseeking, and to determine the feasibility of collecting additional information on the characteristics of persons out of the labor force. Analysis of this test began late in the year.

Following recommendations from NCEUS, BLS conducted a complete review of the establishment survey of employment, hours, and earnings. The review considered methods of sampling estimation, data processing, solicitation of employer cooperation, data collection, and training. Based on the review, a revision extending over several years of the Federal-State cooperative program is planned. Some of the basic groundwork for the revision is underway.

The Secretary of Labor transmitted to Congress an interim report of reactions to the NCEUS recommendations in 1980. A report from the Secretary of Labor of actions taken or planned with respect to implementing each of the recommendations is expected to be issued in 1981.

In the employment and unemployment area, BLS published new data and analyses oriented toward issues concerning the status of labor market participants. A new release was initiated that relates earnings to the labor force status of individuals in family groups. This new series permits analysis of employment, unemployment, and earnings of individuals in relation to characteristics of the families in which they live. BLS also expanded and improved information on racial and ethnic minorities. Attempts to seasonally adjust labor force data for persons of Hispanic origin were successful. These adjusted data will be published regularly in the monthly "Employment Situation" press release. The new data permit valid analysis of month-to-month changes among Hispanic workers and more accurate comparisons of their situation with that of other groups. A new quarterly publication, *Employment in Perspective: Minority Workers,* was introduced in 1980 to highlight current developments among blacks and Hispanics.

Major attention was given to methods for improving State and local area employment and unemployment estimates. BLS staff developed an improvement plan aimed at each of the major elements in the estimation system. This included initial testing of a nonresident claims data exchange system to improve the quality of the unemployment insurance claims data that are a major input in the estimate, and development of a system to compare 1980 census estimates with the current local area unemployment statistics.

In 1980, BLS developed national estimates of occupational employment for each manufacturing industry. The 48 State Employment Security Agencies cooperating in the Occupational Employment Statistics (OES) Survey collected data from employers during 1980. The BLS collected data for the remaining States. The OES survey is conducted on a 3-year cycle, with approximately one-third of the manufacturing industries surveyed each year. At the end of the 1980 survey cycle, national estimates were available for all manufacturing industries with up to 1,500 occupations. A survey of non-manufacturing industries began in 1981.

BLS began regular publication of quarterly earnings data collected through the Current Population Survey. In addition to providing more timely information than was previously available on the earnings of various demographic groups, the new quarterly series sheds light on the earnings situation of various types of families. This includes such information as data on the combined earnings of husbands and wives, on the earnings of women who maintained their own families, and on the earnings available to families with unemployed members.

Work continued on improving the State and area employment and wage data bases which are used in preparing wage adjustment indexes required by the 1978 amendments to the Comprehensive Employment and Training Act (CETA). BLS calculated wage indexes derived from quarterly reports on insured employment and wages for over 3,000 counties and 450 prime sponsors to determine the maximum allowable wage for public service employees involved in CETA programs. These data were also used to construct a wage index for determining hospital cost reimbursements for Medicare patients.

During 1980, BLS expanded its Employment Cost Index (ECI) to measure relative changes in total compensation (wages and salaries plus employee benefits). Developmental work to measure the cost of employee benefits for inclusion in the ECI was completed and survey results were published in May 1980. Collection of data for State and local governments was initiated to expand further the coverage of the ECI. Information on the coverage of negotiated wage and benefit changes in public sector collective bargaining units was expanded and published in *Current Wage Developments*. Coverage of terms of collective bargaining settlements was expanded to include public sector settlements that involve 5,000 or more workers.

In 1980, data on paid leave provisions were collected for employees in the Professional, Administrative, Technical and Clerical Survey. These data were added to the data base on employee benefits. In 1981, approximately 70 area wage surveys and 18 industry surveys will be completed. Quarterly and annual union wage surveys in construction will be phased out to redirect resources to higher priority programs.

BLS continued to develop information on employee benefits in the private sector. These data were requested by the Office of Personnel Management for use in implementing proposed procedures for setting the pay of Federal white-collar workers on the basis of total compensation comparability of wages and benefits with the private sector.

In the field of economic projections, BLS continued to develop its regular biennial projections of the labor force, industrial employment, and the outlook for specific occupations. A new set of projections that show industry employment under alternative assumptions about economic conditions in 1985 and 1990 will be published in 1981.

The productivity and technology program measures productivity movements in the economy and in individual industries, identifies the sources of productivity growth, investigates the nature of technological change and its effect on employment within industries, and compares measures of productivity growth for selected industries in this country with those in major industrialized countries of the world. Over the past 4 years, BLS has developed productivity estimates for 35 additional industries. Industry specific productivity measures now represent about 30 percent of the private nonfarm business sector. More specifically, productivity trends in the private business economy and its sectors are reported quarterly and annually. Detailed quarterly and longer-term analyses of productivity performance are published regularly in the *Monthly Labor Review*.

In 1980, two reports were prepared which relate to efforts to develop new measures of mutlifactor productivity. The reports concerned alternative approaches to measuring the concept and implica-

tions of historical and projected changes in the labor force composition for productivity growth. In addition, existing industry productivity measures were updated, new measures were published for five industries, coverage of agencies in the Federal Government productivity series was expanded, and special analyses were completed which relate employment implications to technological change in specific industries.

In 1981, a major effort will be devoted to the initiation of a multifactor productivity program designed to provide a measure of the change in the use of all resources—capital, labor, energy, and materials—in the production of goods and services in the private sector.

NATURAL RESOURCE STATISTICS

The two dominant trends in natural resource statistics during 1980 were the increasing reliance on resource inventories and large research programs for basic data, and the increasing policy level attention being given to data collection and analysis. Several major inventory and research programs have been written into law and are now being implemented. Simultaneously, high level reviews of minerals and land-use data indicated the need for improvement of both current and planned programs.

Following a review of non-fuel minerals policy, a Presidential directive assigned the Bureau of Mines responsibility for an interagency effort to inventory data sources, devise standards to improve compatibility among data bases, identify significant gaps and duplications, and rationalize analytical data systems capable of supporting minerals policy. During 1981 the Committee on National Statistics of the National Academy of Sciences will review the statistical program of the Bureau and provide recommendations on priority problems. The research team of the National Agricultural Lands Study (NALS) examined resource inventories produced by the Forest Service and the Soil Conservation Service as well as data from major statistical agencies and found that gross trends in land-use could be reconciled, but shifting concepts and methodologies prevented unambiguous determinations of the rates of change or possible acceleration of trends. NALS working papers have been prepared outlining needed improvements in the planning and coordination of land-use data series and natural resource data generally.

Water data coordination led by the Geological Survey and the AgRISTARS remote sensing program led by the Department of Agriculture effectively focused on integrated planning to meet multiagency program needs as well as the technical problems of data acquisition and exchange. On the other hand, coordination activities under the Interagency Agreement on Classifications and Inventories of Natural Resources (the "Five Agency" Agreement[2]) have been limited to the technical problems of information exchange.

While planning for its new role in coordinating mineral information, the Bureau of Mines (BOM) improved the performance of its basic statistical mission. Concentrated efforts have resulted in significant improvements in the timeliness of the *Minerals Yearbook*, a major Bureau publication. Between the 1976 and the combined 1978-79 editions, the timeliness of Volume I was improved by 17 months while timeliness for Volumes II and III was improved by 28 months. Further improvements are anticipated for the 1981 *Minerals Yearbook* to be published in 1982.

To improve timeliness, the production process for each of the Bureau's 25 monthly and 12 quarterly Mineral Industry Surveys, which provide detailed data on production, stocks, consumption, trade, and prices for major mineral commodities, was reviewed during 1980. Additional improvements will be accomplished through individual evaluation of each Mineral Industry Survey. Ten Mineral Industry Surveys are scheduled to be evaluated in 1982.

BOM also began work on two information systems designed to improve the availability, quality and analysis of nonfuel minerals data necessary for the development of consistent and balanced Federal policies. The first system is the Automated Mineral Information System which will include information on mineral production, productive capacity, consumption, industrial stocks, mineral land classification, and mineral demand for 34 critical commodities.

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[2]The five agencies are the Bureau of Land Management, the Forest Service, the Fish and Wildlife Service, the Soil Conservation Service and the Geological Survey.

A second project, the Minerals Availability System (MAS) will develop and maintain worldwide minerals availability information and data required for minerals research and development and environmental and land use decisionmaking. Detailed mineral property evaluations will be used to provide commodity supply analyses for both domestic and foreign resources. Availability curves will show reserves available at incremental fluctuations in commodity prices. Engineering and cost evaluations are planned for completion in 1983 and supply availability curves in 1984 for 23 critical mineral commodities.

Both the Forest Service and the Soil Conservation Service conduct national resource inventories under statutory mandates. Under the Resources Planning Act of 1974 and the Resources Research Act of 1978 the Forest Service performs forest inventories which assess timber, wildlife habitat, forage, and other values on public and private forest lands.

During 1980, the Forest Service released a preliminary analysis of the timber situation in the United States for the period 1952-2030. This analysis will be incorporated into the "Assessment of the Forest and Rangeland Situation in the United States" required by Congress for Forest Service program planning. The assessment report will be the second comprehensive analysis of the Nation's renewable resources presenting the current situation about, and demands for, range grazing, outdoor recreation, timber, wildlife and fish, and water resources.

Soil Conservation Service inventories are mandated by the Soil and Water Resources Conservation Act and cover actual and potential agricultural crop land (ranked by quality), forest and range land, and other land use and natural resource categories. The inventories complement an extensive program of soil surveys which includes laboratory testing, research, soil mapping and special studies. The inventories are used in the development of analytical models to appraise soil and water conservation programs.

Atmospheric, climatological and oceanographic data are the responsibility of the National Oceanic and Atmospheric Administration (NOAA). In 1980, NOAA published a 5-year plan required by the National Climate Program Act of 1978. The plan is intended to produce a comprehensive description of the atmospheric and oceanic environment as they affect climate. Data collection and research outlined in the plan are designed to address problems of food production, energy demand, and the impacts of energy production, environmental assessment, and water resources management.

NOAA's Center for Environmental Assessment (CEAS) provides monthly climatological and economic assessment of major climatic abnormalities in the United States which have heavy impacts on agriculture, energy consumption, and the national economy. CEAS publishes monthly socioeconomic assessments of climate and weather impacts in key sectors of the U.S. economy as well as weekly assessments of climatic fluctuations on national and global production.

CEAS supports energy analysis by providing consumption estimates based on a NOAA gas demand model that utilizes National Weather Service seasonal and monthly outlooks. The Center also provides the U.S. Coast Guard with projected oil spill trajectories based on historical meteorological and oceanographic data. Simultaneously, CEAS is preparing a design for physical, chemical, and biological monitoring of the brine discharged into Gulf of Mexico waters as a result of Strategic Petroleum Reserve operations.

During 1981 CEAS plans to complete development of a marine ecosystem model to track pollutants in the Gulf of Mexico and in the North Atlantic, and to expand economic modeling for climate and weather impacts on U.S. agriculture and energy production.

The largest statistical program of the Fish and Wildlife Service (FWS) is the National Wetlands Inventory. Other continuing programs include annual surveys of the population and harvest of waterfowl and other birds and a high quality monitoring program for contaminant residue levels in birds and fish. In 1980, 1981, and 1982 FWS is funding the quinquennial National Survey of Hunting and Fishing performed by the Census Bureau. This survey provides benchmark data for many FWS programs.

POPULATION STATISTICS

As in 1979, the preponderance of the activities in 1980 concerning population statistics were related to the 1980 census. Developments related to the 1980 census were discussed in the crosscutting section on the 1980 Census of Population and Hous-

ing. However, other important developments included: progress on planning for the expanded use of administrative records as an alternative to the mid-decade census program (see separate section on this topic); planning for the sample redesign of the major household surveys to follow the 1980 decennial census (see separate section); and publication of special reports addressing such topics as child support and alimony, families maintained by female householders, the socioeconomic characteristics for households, and nonvoting Americans.

The third comprehensive social indicators chartbook, entitled *Social Indicators III,* was prepared by the staff of the Center for Demographic Studies (CDS), Bureau of the Census, with the cooperation of other Federal statistical agencies. The report was published in December 1980.

Several major new efforts were undertaken by the Census Bureau to collect and examine data on noncash income. Information on a wide variety of noncash income sources was collected in the March 1980 Current Population Survey (CPS) and in the Survey of Income and Program Participation (SIPP) which is jointly sponsored with the Department of Health and Human Services. Both surveys provided information for Medicare, Medicaid, food stamps, free or reduced price school lunch programs, public housing, and employee-provided group health insurance and pension plans. A publication of the data collected in March 1980 CPS is planned with release expected in the fall of 1981. Public-use microdata files containing the noncash income data will also be made available in 1981.

The research and development phase of SIPP was in its third and final year in 1980. Major accomplishments included completion of the third pilot survey. Data from this survey are now being evaluated and analyzed. Because of funding cutbacks, planning for the start of SIPP was moved from 1981 to 1982. Assuming the availability of funds, the ongoing survey will begin in early 1982.

Also, because of fund cutbacks, the tabulation and analytical program for the National Crime Survey sponsored by the Bureau of Justice Statistics was curtailed.

The Bureau of the Census continued its work in 1980 on the development of a methodology combining economic and demographic assumptions for producing State-level population projections. In late 1979, OFSPS issued jointly with the Office of Management and Budget proposed standards for the development and use of population projections in Federal fund allocations. During the past year, OFSPS has been reviewing the comments received in response to these proposed standards (see section on population projections).

PRICES AND PRICE INDEXES

The prices and price indexes programs provide a comprehensive and detailed set of measures of price change for several different levels of the economy. The chief suppliers of these measures are the Bureau of Labor Statistics (BLS), the Bureau of the Census, and the Economics and Statistics Service of the Department of Agriculture. Other agencies supply additional price and price index information (see transportation statistics for transportation rate information and general economic and financial statistics for indexes that are a part of the national economic accounts).

In 1980, BLS continued a multiyear program of enhancing its price statistics series. Revised outlet samples were introduced in 17 Consumer Price Index (CPI) pricing areas and a Point-of-Purchase Survey was conducted in 17 additional areas. The procedure of revising outlet samples is a part of the ongoing program to update 20 percent of the CPI outlet sample each year. Following the revision plan for the Producer Price Index (PPI) program, new industry price indexes were published for 28 industries and developmental work was started on indexes for 90 additional industries. Further expansion of industry coverage in the mining and manufacturing sectors is provided for in the 1981 budget. Thirty additional industry indexes are scheduled for release early in 1981. The new indexes are industry-based rather than commodity-based, but more detailed commodity information is expected to become available as a by-product of the revision program.

Rising inflation and use of the CPI to adjust entitlements in several Federal programs triggered criticism of the CPI program. The two criticisms most frequently raised are that the weights used in the CPI are not revised frequently enough and that the method of measuring the homeownership component causes the CPI to overstate the actual rate of inflation. These concerns resulted in Congressional hearings at which BLS, OFSPS, and

other interested parties presented testimony on the measurement and uses of the CPI. BLS also published in February 1980 a special report on CPI issues and began monthly publication of five experimental homeownership measures with its regular CPI release. In addition, periodic news releases are now being prepared to report consumer prices for food and energy. The energy price release contains information on gasoline, fuel oil, electricity, and natural gas prices for the U.S. city average, 28 large urban areas and 12 categories reflecting four Census regions cross-classified by three population sizes.

The current series contain gasoline price information for January 1978 to date and price information on the other energy sources for November 1978 to date. The food price releases contain information on 84 food items. Prices are reported for the U.S. average and four Census regions. The first release was in August 1980, but the series include price information starting with January 1980.

In the First Budget Resolution for 1981, the Congress called upon the President to "review current inflation measures used for indexing Federal programs, as well as other indexing alternatives." The Council of Economic Advisers and OMB responded with a review of indexing as reported in the *Report on Indexing Federal Programs* that was published in January 1981. The Food Stamp Act Amendments of 1980 stated that "The Congressional Budget Office, in consultation with the Secretary of Agriculture, the Secretary of the Department of Commerce and the Secretary of the Department of Labor shall review the Consumer Price Index and the various alternative consumer price or cost-of-living indices . . ., to examine the limitation of each statistical alternative . . ." The CBO report entitled "Indexing with the CPI: Problems and Alternatives" will be published in 1981. On yet another front, the General Accounting Office has been conducting an assessment of the homeownership component of the CPI and is expected to publish a report on findings in 1981.

The Consumer Expenditure Survey (CES) program undertaken by BLS in 1979 was designed to provide the basis for updating or revising the CPI and the Family Budget programs. In addition, it will provide a previously unavailable continuing source of data on consumer expenditures and income for use in economic analysis and policy information. Comprehensive consumer expenditure surveys previously were conducted every 10 to 15 years in conjunction with periodic programs to revise the CPI. In 1980, a full year of CES data collection was carried out and development of a data review and processing system was initiated. Limited publication of data from the survey are planned for 1981. The Census Bureau has responsibility for CES data collection and processing. Publication of the data, including public use tapes, is the responsibility of BLS.

BLS has responsibility for providing estimated costs of hypothetical annual budgets for a four-person family and a retired couple for three levels of living in 31 selected urban areas of the country. In 1980 an expert committee on family budget revisions reviewed the program and proposed to BLS a new set of family budget standards and methodologies to revise the current program. The committee report is being reviewed and evaluated by BLS with input and advice from the BLS labor and business advisory committees. The Statistical Policy Coordination Committee will review the report in 1981. In the interim, family budget costs and indexes are being updated to fall 1980.

The BLS international price program provides measures of price change for exports and imports of the United States and analyses of price trends of products made in the United States and traded in world markets. Currently, indexes for prices of U.S. exports and imports are updated and published on a quarterly cycle. As a result of the 1981 program increase, work will be initiated to expand program coverage to provide price indexes that cover an additional 4 percent of the value of U.S. exports and an additional 8 percent of the value of U.S. imports. Export products covered in this expansion are meat, fish, fruits and vegetables, animal feed and other food products. Import products to be covered are power generating machinery, office machines, printing machines, trucks, aircraft and selected other machines. When completed, this expansion will bring program coverage to approximately 80 percent of the value of U.S. exports and imports. Special analyses of the change in prices of U.S. imports from Japan and of U.S. export trade with the Organization of Petroleum Exporting Countries are continuing for use by U.S. negotiators and policymakers. New studies are underway that compare the price movements of selected important U.S. exports with those of competing products exported from Japan and Germany.

As part of the foreign trade program of the Bureau of the Census, monthly import and export data showing quantity and value data for each export (Schedule B) and import (TSUSA) commodity number will be published in 1981.

In a continuing effort to improve its agricultural prices program, the Economics and Statistics Service of the Department of Agriculture has placed considerable emphasis on improving sample survey designs that will increase the reliability of estimates of prices received and paid by farmers. Most of the surveys of prices received by farmers for crops are now on a probability sampling basis. Probability samples to obtain livestock prices have been implemented in 25 States, and pilot work is planned for egg prices in five States. Most surveys of prices paid by farmers for production items and services have also been converted to a probability sampling basis.

Exploration of the potential development of land price indexes by an interagency work group is being coordinated by the Library of Congress and OFSPS. Initial meetings were held in 1979, and papers were prepared in 1980 on the possible uses of and methodological issues involved in constructing such indexes. After a review of these papers, BLS was given the lead role in designing a system of land price indexes and developing procedures for collection and processing data on land sales. The first step calls for a feasibility study to assess the characteristics of existing data on land sales transactions and to develop procedures for the construction of land price indexes.

BLS was requested to prepare cost estimates for conducting the feasibility study as part of the 1983 budget planning process that begins in 1981. If the study is conducted and demonstrates that statistically acceptable land price indexes can be constructed, the next step will be to develop a proposal for instituting an ongoing statistical program. The measures to be considered include national and regional indexes by type of land and may cover annual, semiannual, or quarterly periods.

Work on land price indexes also led to certain refinements in planning the collection of data on real estate values and land parcel size in the 1982 Census of Governments that would provide additional land price information at 5-year intervals. In addition, a symposium on urban land issues, including the development of land price indexes, was conducted by the Urban Land Institute (ULI) in 1980 with funding from the Department of Housing and Urban Development. The contributed papers to the symposium were published by ULI in *Urban Land Markets: Price Indices, Supply Measures and Public Policy Effects.*

PRODUCTION AND DISTRIBUTION STATISTICS

The Census Bureau conducted several activities during 1980 that were designed to improve their statistics on production and distribution. The report on "Monthly Selected Services Receipts" was expanded to include data on various health service activities including hospitals, dental laboratories, offices of physicians and offices of dentists. The expansion also added data relating to engineering, architectural, and surveying services.

Monthly retail sales and inventory estimates were benchmarked to the 1977 Census of Retail Trade and the 1978 Annual Retail Trade Survey. A summary publication was issued that showed the revised monthly estimates for 1973-1979 and a second publication showed both the original and revised monthly estimates for January 1977 through February 1980. Work also continued on revision of the samples used for collecting monthly data on retail trade, wholesale trade and service industries. The new samples are being introduced in 1981.

Publication of data from the 1978 Annual Survey of Manufactures included new data to supplement existing estimates of the value of assets and capital expenditures. The new data items include retirements of capital assets, depreciation charges and expenditures for buying used capital equipment.

Several activities brought the work of the 1977 Economic Census closer to completion. Final industry reports and State reports were issued for the 1977 Census of Manufacturers. Sixteen reports on special subjects were completed on a flow basis on such subjects as fuels and electric energy consumed, water use, origin of exports of manufactured products, concentration ratios, and analytical ratios.

A similar series of reports for the 1977 Census of Mineral Industries was also completed. This smaller census resulted in 14 industry reports, 9 State reports and 7 reports on special subjects.

During 1980 the Census Bureau conducted two projects to evaluate the content of the 1977 Eco-

nomic Censuses. One project evaluated reported census data for the number of employees, amount of payroll, and amount of sales or operating receipts or value of shipments. Personal visit interviews were conducted with probing questionnaires for a sample of single and multiunit establishments. Another evaluation project assessed the accuracy of techniques used to impute data from administrative records for establishments that were delinquent in reporting on the 1977 Census of Business. This project involved the selection of a sample of approximately 3900 delinquent reporters for intensive follow-up. The collected data will be compared with the published data which was imputed from administrative records.

TRANSPORTATION STATISTICS

The year 1980 was an active one for transportation statistics. The Civil Aeronautics Board continued to phase out operations and two other deregulation bills were passed; the Staggars Rail Act of 1980 and the Motor Carrier Act of 1980. The OFSPS-chaired Interagency Committee on Transportation Statistics was reactivated during 1980 to aid in the development of improved planning and coordination of the collection, processing, analysis, and dissemination of transportation statistics. Within the Department of Transportation (DOT) a formal coordination mechanism for statistics was established in recognition of the important changes taking place in the transportation industry.

Coordination of the DOT statistical programs was brought about through the designation of the Administrator of the Research and Special Programs Administration (RSPA) as the principal transportation information official of the Department with the responsibility for planning and developing a coordinated program in transportation statistics, data, and information. A Statistical Policy Coordinating Group was established to ensure that all Secretarial Offices and Operating Administrations are represented. A budget examination process was initiated and applied to examine the priorities of statistical data for multimodal programs for 1982. A Departmental Program for National Transportation Statistics was established to provide needed overview national transportation statistics on the movement of passengers and freight, and the location of facilities. These data will be used for economic and investment analyses, energy studies, and safety studies.

The program also provided the Federal and private sectors with the capability to relate the Standard Point Location Code (SPLC) of the industry to the Federal Information Processing Standard (FIPS) code of the Federal Government, thus establishing a uniform reporting code for identifying points and places. This is a multiagency effort with the National Bureau of Standards, the Interstate Commerce Commission, the U.S. Army Corps of Engineers, and the Department of Transportation.

The Department of Transportation signed a Memorandum of Understanding with the National Bureau of Standards (NBS) of the Department of Commerce assigning DOT as the lead agency in the development of transportation data standards for use in the Federal establishment. When these standards are incorporated in FIPS published by the NBS they will be mandatory for use in automated exchange of data among Federal agencies and in Federal reporting requirements imposed on the public. The agreement between the agencies will reduce the reporting burden on the public, reduce costs, increase use of existing data files, and ensure coordination among the various agencies within the Federal establishment that have a concern with transportation data standards.

The Research and Special Programs Administration sponsored a forum consisting of top level officials of DOT with responsibility for policymaking, planning, management, programming, and operations. The forum was held at the George Washington University to discuss the future programs of the Department for the next 10 to 20 years. Information requirements needed to support these programs were also identified.

RSPA also sponsored a Transportation Research Board study of the transportation statistical requirements of non-Federal users of transportation statistics, data, and information. The focus of the work was to understand better the data practices, and needs of non-Federal users of transportation statistics in order to improve existing data programs, and to suggest other initiatives. The findings of this study will also contribute to the development of a coordinated program of transportation statistics, data, and information for DOT.

The Transportation Statistical Reference File (TSRF), which is a cross-modal computerized data directory in which the references are classified by mode of transportation and data subject, was updated by RSPA during 1980. Information is pro-

vided on the content, storage medium, distribution, data collection, and compilation method and frequency of file update. A user manual provides examples of searches and possible applications to transportation statistical research and policy planning. TSRF is available to DOT and the public through both a printed and an automated online index at the Transportation Systems Center; public access is provided through TRISNET services.

The Federal Highway Administration (FHWA) published the 1979 edition of *Highway Statistics* in November 1980, representing various data summaries on motor fuel, motor vehicles, driver licensing, highway-user taxation, State and local highway financing, road and street mileage, vehicle travel, and Federal-aid for highways. Public use tapes and users guide for the 1977-78 Nationwide Personal Transportation Study (NPTS) were released in May 1980. This study, conducted by the Bureau of the Census for DOT, provides an update of a similar 1969 effort related to nationwide personal transportation patterns including vehicle ownership, vehicle occupancy, trip lengths, trip purposes, and other related travel characteristics. An initial NPTS report, documenting the characteristics of licensed drivers, was released in November 1980, and additional study reports will be available in 1981.

FHWA also received initial data for the Highway Performance Monitoring System (HPMS), and work was completed on the design of a modified HPMS. The new design provides for the centralized collection of highway planning data, providing the capability of assessing the extent, condition, and operating characteristics of the Nation's highway systems and monitoring the performance of these systems on an annual basis.

Equipment was installed and procedures are being implemented to monitor traffic volumes of selected locations throughout the United States. The information obtained will be used to supplement regular monthly traffic reports to assess the impact of the energy situation and, in particular, the effect of fuel availability on highway travel activity. Another reporting system was implemented in which, for the first time, all States are now using a uniform format for submitting motor fuel data. This system will replace the annual reporting of motor fuel gallonage. States will continue to report motor fuel tax revenues on an annual basis only.

The Census Bureau also completed several highway vehicle surveys during 1980. Results of the 1977 Truck Inventory and Use Survey (TIU) were published. Individual State reports which display data on the total number of trucks and their distribution by body type, major use principal products carried, size class and other relevant physical and operational characteristics are available on microfiche. The U.S. Summary report shows the above data distributions for the total United States as well as data for the nine Census divisions.

The 1977 Commodity Transportation Survey data will be made available on a flow basis beginning at the end of February 1981. The quality of the published data is expected to be greatly improved because of an establishment-to-establishment match to the Census of Manufactures product data.

Preliminary tabulations of the 1977 Census of Nonregulated Motor Carriers and Public Warehousing are currently being prepared. The single report which shows economic statistics for those bus and motor carriers not subject to regulation by the ICC is expected to be available in March 1981.

Two supplements to the Annual Housing Survey conducted by the Bureau of the Census for the Department of Transportation were completed and released by the Urban Mass Transportation Administration (UMTA) in December 1980. These two supplements include track-to-track tapes and the Census Bureau Report of Preliminary Data covering 20 Standard Metropolitan Statistical Areas as well as data on commuting patterns of workers.

UMTA now has in operation a uniform system of accounts and records and a reporting system for financial and operating data of mass transit systems. This system has begun producing reports containing data obtained in 1979 for transit systems with fiscal years beginning on or after July 1, 1977. A series of 37 output reports will provide data to support analyses of revenues, expenditures, sources of funds, and performance.

The National Center for Statistics and Analysis of the National Highway Traffic Safety Administration (NHTSA) began operation of the National Accident Sampling System (NASS) at 30 sites during 1980. NASS is a nationally representative sample of all police-reported traffic accidents contain-

ing detailed information beyond that available in State records systems. Full implementation of NASS is planned for the end of 1982 when data will be collected on approximately 15,000 accidents per year.

The Airline Deregulation Act of 1978 will phase out the Civil Aeronautics Board's (CAB) regulatory authority over domestic air transport routes at the end of 1981, and domestic air transport rates (fares) on the first day of 1982. Other CAB regulatory responsibilities are legislated for discontinuance or transfer to other Federal agencies by the end of 1984, CAB's scheduled "sunset" (termination) date. Major responsibilities such as the essential air service to small communities program, the subsidy payment program, and the international air transport routes and rates program responsibilities will transfer to the Department of Transportation (DOT) at sunset. RSPA has created the Aviation Information Task Force which is examining DOT's needs for data for these and other CAB programs and is making plans to acquire and process the data.

In light of the Airline Deregulation Act of 1978, CAB completed in FY 1980 a comprehensive review of its statistical program. The review produced a 5-year plan for gradually reshaping and reducing CAB data collections in view of the regulatory programs served. The plan calls for elimination of data collections no longer required by CAB, with adequate notice to other Federal agencies and outside users to give time for them to assume responsibility for any reports or data they need, or for them to develop alternative sources. Implementation of the first phase of the plan will provide an estimated reporting reduction of 62 percent for the smallest nonsubsidized carriers holding a CAB certificate, and overall reporting paperwork reductions estimated at 40 percent by FY 1981.

In November 1979, CAB instituted a rulemaking proceeding to insure complete air service participation in the previously voluntary Passenger Origin and Destination Survey until the system's December 31, 1983 sunset date. At the end of FY 1980 CAB issued the final rule as proposed, with the stipulation that CAB's need for the data would be again reviewed prior to the system's sunset to see if CAB's then-current air transport regulatory data needs support continuation of part or all of the data system. In the proceeding, CAB opened the survey to voluntary participation by noncertified air carriers. Also in the proceeding, the CAB declared its intention to explore transfer of the entire system to the private sector, since the survey is primarily a market research tool. CAB plans to assume the role of a user, paying only for the data it needs.

In December 1979, CAB initiated a rulemaking proceeding to reduce Form 41 financial and statistical reporting requirements for all air carriers holding a CAB certificate as the first step in implementing its 5-year plan. CAB adopted the final rule in July 1980. Ten report schedules were eliminated from the uniform system of accounts and reports reducing the number remaining to 46 reports, two of which will apply only to subsidized carriers. The rule also eliminated reporting requirements for six of 21 accounting plans. Monthly financial reports were decreased from two pages containing almost 200 data elements, to one page with six data elements.

This same rulemaking proceeding implemented a new monthly statistical report for small air carriers (under $75 million in annual operating revenue) and air carriers that recently obtained a CAB certificate (principally former intrastate or commuter firms). This new report fills a statistical gap in air transport market data that existed between large air carriers holding CAB certificates, who file very detailed service segment data each month, and commuter air carriers not holding CAB certificates, who file summarized online traffic statistics each quarter.

As a direct result of the 5-year plan, the reporting of detailed domestic charter market data was limited to the top markets by CAB staff acting under delegated authority. A future rulemaking proceeding is planned that may totally eliminate this collection, even though foreign charter market data collections continue.

At the end of FY 1980, a second Form 41 financial and statistical rulemaking procedure was being prepared as a result of the 5-year plan. This rule would further reduce, refine, or eliminate reports for air carriers holding CAB certificates that are required by CAB's uniform system of accounts and reports. The rule would revise annual operating revenue classes used to group air carriers according to size. This is designed to insulate data from the effects of inflation. The rule also would reduce the number reports to 36. Two additional forms

will apply only to subsidized air carriers. The summary traffic statistical reports will be processed for consolidation and streamlining to reduce their number by five reports.

Late in the year, CAB undertook the revision of its recurrent air transport financial and statistical publications, and unpublished reports, to implement statistical groupings based solely upon air carrier annual operating revenues. The new groupings are "majors" (air carriers with revenues over $1 billion), "nationals" (air carriers with revenues between $200 million and $1 billion) and "regionals" (under $200 million). These new groupings will first appear in the monthly *Air Carrier Traffic Statistics* and quarterly *Air Carrier Financial Statistics* publications.

The 1978 law established a new CAB regulatory function to review the "fitness" of all air carriers. However, a significant data gap existed in financial statistics for commuters. To avoid new Federal reporting requirements, CAB is encouraging all commuter air carriers to provide financial statistics to Dun and Bradstreet which already has many commuter participants. If commuters provide data to Dun and Bradstreet at an adequate level, CAB reporting requirements will not be levied upon these predominantly small businesses. Further, in lieu of universal regular collection of aircraft operating cost data from commuters, CAB is developing sampling techniques and systems to be employed by the on-site audit staff.

The Federal Aviation Administration (FAA) also collects and publishes a wide variety of aviation statistics. These include information about aircraft (both air carrier and general aviation), pilots and other airmen, air traffic counts at FAA facilities, enplaned passengers and cargo at airports served by the U.S. certified route air carriers. During 1980 FAA released its regular annual publications relating to these statistics. FAA has also published several special reports during the year relating to airport services and activities. Included in these special studies is a series of aviation activity forecasts for 25 major metropolitan areas.

Results of the latest General Aviation Pilot and Aircraft Activity Survey will be available in 1981. This survey conducted by the FAA with the assistance of the Civil Air Patrol provides data on a wide range of general aviation characteristics.

On January 3, 1979, the Interstate Commerce Commission (ICC) published a Data Task Force Report which contained 45 recommendations aimed at reducing the compiling, collecting, and reporting burden of all carriers regulated by ICC. The recommendations include the elimination of 25 forms and are expected to save the ICC and the carriers a total of $20 million annually. Some of the recommendations were initiated during Phase I of the Bureau of Accounts' data reduction plan in FY 1980 but the majority of the recommendations represent new reductions.

The new reductions will eliminate ICC's Uniform System of Accounts (USOA) and reports by certain carriers. Another reduction initiated in FY 81 is the elimination of Annual Report form R-2 and the USOA of Class II railroads. ICC has studied the use of data filed by all Class III motor carriers and railroads and determined that the occasional use of the information does not justify the reporting burden to the carriers. Therefore, these reports are not required for calendar year 1980.

Reporting by motor carriers of property for the purpose of cost determination will also be affected. After the reduction in reporting is made, only motor carriers of general freight and household goods carriers will be required to report. In addition, a study was initiated in 1980 of the annual report of Motor Carriers of Property, the annual report of Household Goods Carriers, and each quarterly report which is designed to reduce the reports.

Since 1946 large railroads have been required to submit a one-percent sample of waybills (paper copies of information on each carload moved) for shipments terminating on their railroad. A plan has now been developed and is being implemented whereby a railroad can as an alternative, supply specified shipment information on machine readable tapes. This plan will substantially cut down paper handling by the railroads and the government and increase accuracy. Moreover, the process will use data already on tape for other use by the railroads, thus improving efficiency in the data use.

The Federal Railroad Administration (FRA) is another source of rail industry statistics. In 1980, FRA designed the Investment Analysis System (IAS) to facilitate the financial analysis of a railroad system. IAS permits the assessment of such financial viability indicators as: (1) determination of the sources of earnings; (2) ability of the carrier to meet obligations and finance capital needs; (3) as-

sessment of the company's fiscal policies; and (4) assessment of the future outlook of the company.

A Railroad Comparative Statistical Analysis System (RCSAS) was implemented in FRA in 1980. The system operates in an automated mode capable of producing a wealth of statistics for use in policy, financial, and merger studies. RCSAS is based on operating and traffic statistics published by the Association of American Railroads for the period of 1972 to 1979. The data are obtained principally from the Interstate Commerce Commission.

FRA has recently released *Railroad Freight Traffic Flow 1990* which forecasts railroad freight traffic flows. FRA will prepare a new 10-year forecast periodically. During 1980 FRA also prepared and published several reports covering proposals to reduce rail-highway grade crossing accidents.

As a result of the Passenger Railroad Rebuilding Act of 1980, four reports to Congress are being prepared by FRA. The first of these reports is the final Emerging Corridors Evaluation Study, which is required to be submitted to Congress by mid-February 1981. This report will evaluate the development potential of 19 intercity rail passenger corridors throughout the Nation. Also being prepared for mid-February, is a report on the potential for private sector development of the Philadelphia to Atlantic City, New Jersey rail passenger corridor. Thirdly, a report on public and private sector redevelopment of areas in the vicinity of the Northeast Corridor rail passenger stations is being prepared for a May 30, 1981 publication date. Finally, an evaluation of passenger and freight rail service along the Northeast Corridor between New York City and Washington, D.C. is required by May 30, 1981.

The FRA will publish the Northeast Corridor Improvement Project Fiscal Year 1980 Report by the Spring of 1981. The report will describe progress on the Northeast Corridor Improvement Project, the rail rehabilitation project between Washington D.C. and Boston during FY 1980. In addition, the report provides a variety of statistical information on the operating and financial results of Amtrak operations in the Northeast Corridor. The report will contain data on train operations and service levels, equipment and investments, marketing activities, plans for future operations, and the financial results for 1980.

Fiscal Year 1982 Budget Requests for Statistical Agencies

Obligational authority is given in Table 2 for statistical programs which are separately identified in the President's Budget for fiscal year 1982. The major change from 1981 to 1982 is for funding for the 1980 Census of Population and Housing which shows a further decrease as decennial activities move towards completion.

Summary of OFSPS Activities

Earlier sections of this report on general, selected crosscutting issues and on statistical standards have described many of the activities in which OFSPS was engaged during 1980. This section describes the general responsibilities of the Office, the organizational structure, general ongoing functions, and selected accomplishments not covered in earlier sections.

HISTORY AND STRUCTURE

Establishment of OFSPS.—As a result of President Carter's Reorganization Plan No. 1, the Office of Federal Statistical Policy and Standards was established in the Department of Commerce as a successor to the Statistical Policy Division in the Office of Management and Budget. On October 7, 1977, President Carter signed Executive Order No. 12013 entitled "Relating to the Transfer of Certain Statistical Policy Functions." This Executive Order redelegates to the Secretary of Commerce authority granted to the President by Section 103 of the Budget and Accounting Procedures Act of 1950. This act authorizes and directs the President (and, now the Secretary of Commerce, acting on his behalf):

> ". . . .to develop programs and to issue regulations and orders for the improved gathering, compiling, analyzing, publishing, and disseminating of statistical information for any purpose by the various agencies in the Executive Branch of the Government. Such regulations and orders shall be adhered to by such agencies."

The statistical policy function exercised by OFSPS is governmentwide and objective in nature, extending to all economic and social statistics throughout the Federal Government.

As noted in the "General Issues" section of the report, Public Law 96-511 transferred this function to the Office of Management and Budget, effective April 1, 1981. The new Statistical Policy Division in the Office of Information and Regulatory Affairs will have substantially more influence and involvement in information policy than the old Statistical Policy Division.

Statistical Policy Coordination Committee.—During 1980 OFSPS functioned under general guidance from the Statistical Policy Coordination Committee (SPCC) which was also established by Executive Order No. 12013. SPCC is chaired by the Secretary of Commerce and includes the heads of all Cabinet departments, the Director of OMB, and the Chairmen of the Federal Reserve Board and the Council of Economic Advisers. This Committee provides a mechanism for bringing Cabinet-level attention to major Federal statistical issues with the purpose of advising and assisting the President with respect to the improvement, development, and coordination of Federal statistical activities. The Committee plays a major role in reviewing, establishing, and enforcing statistical standards and takes the lead role in identifying priorities for statistical programs which need to be addressed in the budget-setting process. Activities of this Committee during 1980 are described in a separate crosscutting section.

ONGOING ACTIVITIES

Planning and coordination.—The primary mission of OFSPS is that of statistical planning and coordination of statistical programs, agencies, and issues across all departments and across all subject areas. Under Section 103 of the Budgeting and Accounting Procedures Act of 1950, the office has the authority and responsibility for developing a coordinated statistical program for the entire U.S. Federal statistical system, as well as for private sector users of Federal data. OFSPS takes the lead in formulating recommendations to the Director of OMB on the budgets of the statistical agencies. These recommendations for improving statistical programs are presented in a coordinated fashion after priorities have been carefully studied.

General coordination activities include committee management, interagency coordination in various subject matter areas, and general liaison in international statistical activities. Also important in this area are efforts to obtain public input, including concerns of State and local governments, public interest groups, and business and industry.

Reports clearance activities.—OFSPS has a basic role in the clearance of statistical surveys. This function involves assuring that the proposed data collection is needed for a Federal purpose, that no existing source of statistics exists which might be adapted to meet the need, that the data collection design is appropriate to the intended use and that minimal quality standards are maintained at reasonable cost. Coordination is maintained with OMB on a broad range of surveys important to the statistical system and on a variety of clearance issues arising out of the clearance of administrative data collections.

Standards development activities.—The development, improvement, and enforcement of statistical standards is an important continuing function of OFSPS. Work on the Standard Industrial Classification, the Standard Occupational Classification, and the general concerns of the Federal Committee on Statistical Methodology, described in earlier sections of this report, are illustrative of the work required to maintain the leadership required by the Budget and Accounting Procedures Act. Standards and guidelines are issued in the *Statistical Policy Handbook* by OFSPS. They will become OMB Circulars under Public Law 96-511.

SPECIFIC PROJECTS

OFSPS conducted a number of sizable projects during 1980 which have not been described in the crosscutting sections. These projects relate to six of the ten broad major functional areas included in the Department of Commerce order relating to statistics.

The first project relates to improving the organizational structure for the performance of statistical services. Most statistical coordination efforts have been directed at the major statistical agencies. However, many other agencies conduct statistical programs as a minor part of their administrative, program management, or regulatory mission. A program was initiated to identify such agencies and to assist them in becoming more integrated into the statistical system.

A second project produced a series of proposals for the establishment of an improved statistical coordination, planning and service unit in the En-

vironmental Protection Agency some of which were adopted after extensive discussion with OMB and EPA. The third project relates to the establishment of a strong analytical capability for the newly created Bureau of Justice Statistics. Activities included discussions with OMB, the Department of Justice, the Committee on National Statistics and OFSPS participation on the American Statistical Association (ASA) Committee on Law and Justice Statistics.

A fourth project focused on the reduction of respondent burden through the elimination of duplication in existing statistical programs. Accomplishments included identification of energy data which could be more effectively collected by the Bureau of the Census and initiation of a coordinated review of oil import data by the Energy Information Agency, Census and the Customs Bureau. In addition, plans were prepared for the establishment of a crosscutting committee for environmental, energy, and natural resource statistics.

Finally, two additional projects supported improved Federal, State and local cooperative programs in statistics. OFSPS provided substantial input to an expert panel evaluation of the Cooperative Health Statistics Systems. In a second project a concept paper was prepared which presents alternative techniques for extending the scope of State Data Centers to involve Federal agencies in addition to the Bureau of the Census. A listing of work products is available from OFSPS.

OFSPS PUBLICATIONS

As part of the planning and coordination process, the Office of Federal Statistical Policy and Standards prepares publications about Federal statistical activities. These publications seek to provide a general overview of the Federal statistical system and related statistical activities, as well as information on statistical methodology, and standards and guidelines affecting the development of Federal statistics.

The following is an annotated list of OFSPS publications, which are available by ordering through the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C.

A Framework for Planning U.S. Federal Statistics for the 1980's. Issued 1978. Provides a coordinated overview of potential directions for the Federal Statistical System to take in the coming decade so as to achieve a more integrated set of social and economic statistics. Reviews the organization and operations of the Federal statistical agencies, individual statistical programs, and crosscutting issues and makes recommendations for improvement. (GPO Stock No. 003-005-00183-2, price $6.25)

Revolution in United States Government Statistics, 1926-1976. Issued 1978. Background document for the *Framework* which traces developments in important areas such as sampling applications, national income accounts, use of computers, and coordinating mechanisms during the 50-year period. Final chapter considers major issues which were unresolved at the end of the 50-year period, leading to the topics which are addressed in the *Framework.* (GPO Stock No. 003-005-00181-6, price $4.50)

Gross National Product Data Improvement Project Report. Issued 1979. Provides the first comprehensive evaluation of the underlying data used to estimate the national economic accounts and makes recommendations for improving these data. (GPO Stock No. 003-010-00062-7, price $4.25)

Federal Statistical Directory. 26th edition, 1979. Lists by organizational units within each agency, the names, office addresses and telephone numbers of key persons engaged in statistical programs and related activities of agencies of the executive branch of the Federal Government. (GPO Stock No. 003-005-00184-1, price $5)

Statistical Policy Handbook. Issued 1978. Contains the Directives for the conduct of Federal statistical activities, information about interagency committees which have a significant role in Federal statistics, and publications of OFSPS. Directives provide standards and guidelines for such activities as statistical surveys, publications of statistics, release of statistical information, industrial classification, race and ethnic categories for Federal statistics, standard metropolitan statistical areas, and so forth. (GPO Stock No. 003-005-00179-4, price $2.50)

Statistical Reporter. Monthly publication designed for the interchange of information among Federal Government employees engaged in statistical and research activities. Includes notes on surveys and programs, major organization changes, statistical publications, schedule of release dates for principal Federal economic indicators, Federal statistical

personnel, and a feature article on a current development in Federal statistics. (Subscription available through GPO for $13 a year)

Standard Metropolitan Statistical Areas, 1975. Contains the 1971 criteria used by the Office of Federal Statistical Policy and Standards, Department of Commerce in designating and defining standard metropolitan statistical areas and standard consolidated statistical areas, as well as the titles and definitions of these areas. Also included is a map of the SMSA's. (GPO Stock No. 041-001-00101-8, price $2.30)

The new 1980 standards for metropolitan statistical areas are available from OFSPS.

Standard Occupational Classification Manual, 1980. Contains definitions for over 600 occupational groups to be used in the collection, tabulation, and analysis of data about occupations. This revision of the original 1977 edition includes a direct relation to the *Dictionary of Occupational Titles,* and will be the basis of the Census classification of occupations. (GPO Stock No. 003-005-00187-5, price $12.00 (hard cover).

Standard Industrial Classification Manual, 1972 and 1977 Supplement. Contains titles and description of industries and alphabetical indexes for both manufacturing and nonmanufacturing industrial establishments (e.g., factories, mills, stores, hotels, mines, farms, banks, depots, warehouses). SIC was developed for use in the classification of establishments by type of activity in which they are engaged; for purposes of facilitating the collection, tabulation, presentation, and analysis of data relating to establishments; and for promoting uniformity and comparability in the presentation of statistical data collected. (GPO Stock No. for the Manual 4101-0066, price $10.25 (hard cover); GPO Stock No. for the 1977 Supplement 003-005-00176-0, price $1.50)

Correlation Between the United States and International Standard Industrial Classifications. Technical Paper 1, October 1979. Relates the current International Standard Industrial Classification (ISIC) published by the United Nations to the Standard Industrial Classification (SIC). Thus both are concerned with the classification of establishments, i.e., factories, farms, stores, banks, ranches, shops, schools, etc., rather than enterprises, i.e., companies, firms, corporations, etc. The correlation is shown in both ISIC and SIC codes. (GPO Stock No. 003-003-02142-3, price $1.75)

Statistical Policy Working Papers. Series of technical documents prepared by working groups or task forces under the auspices of OFSPS. Currently there are six papers in the series: *Report on Statistics for Allocation of Funds,* Issued 1978 (GPO Stock No. 003-005-00178-6, price $2.40); *Report on Statistical Disclosure and Disclosure-Avoidance Techniques,* Issued 1978 (GPO Stock No. 003-005-00177-8, price $2.40); *An Error Profile: Employment as Measured by the Current Population Survey,* Issued 1978 (GPO Stock No. 003-005-00182-4, price $2.75); *Glossary of Nonsampling Error Terms: An Illustration of a Semantic Problem in Statistics,* Issued 1978 (available from OFSPS); *Report on Exact and Statistical Matching Techniques,* Issued 1980 (GPO Stock No. 003-005-00186-7, price $3.50; and *Report on Statistical Uses of Administrative Records,* Issued 1980 (GPO Stock No. 003-005-00185-9, price $4.50).

1980 Supplement to Economic Indicators. Contains an explanatory text and historical data for each series which appears in the monthly *Economic Indicators,* which is prepared for the Joint Economic Committee by the Council of Economic Advisers. (GPO Stock No. 052-070-0543-1, price $5.00)

TABLE 1. OBLIGATIONS FOR PRINCIPAL STATISTICAL PROGRAMS, BY AGENCY
(in millions of dollars)

Agency	FY 1980 Actual[1]	FY 1981 Estimate
CURRENT PROGRAMS		
Department of Agriculture:		
Economics and Statistics Service	90.2	95.2
Foreign Agricultural Service	17.4	19.1
Forest Service Research	9.0	9.5
Human Nutrition Center	4.2	4.2
Soil Conservation Service	67.6	77.1
Other, agency not specified[2]	17.1	16.8
Department of Commerce:		
Bureau of Economic Analysis	15.8	16.9
Bureau of the Census	53.7	57.4
Bureau of Industrial Economics	4.3	7.3
Industry and Trade Administration	1.8	2.5
Economic Development Administration	.5	.6
National Oceanic and Atmospheric Administration:		

Agency	FY 1980 Actual[1]	FY 1981 Estimate
CURRENT PROGRAMS		
National Marine Fisheries Service	6.3	5.7
Other, NOAA[2]	46.7	50.1
Department of Defense:		
Corps of Engineers	2.9	3.0
Other, agency not specified[2]	8.7	9.3
Department of Education:		
National Center for Education Statistics	9.9	9.9
Department of Energy:		
Energy Information Administration	88.2	104.7
Resource Applications	62.1	30.5
Other, agency not specified[2]	10.8	22.6
Department of Health and Human Services:		
Alcohol, Drug Abuse and Mental Health Administration	6.2	8.4
Center for Disease Control	6.5	6.9
Food and Drug Administration	2.3	2.4
Health Care Financing Administration	17.2	21.7
Health Resources Administration	3.4	3.5
Health Services Administration:		
Health Services	1.1	1.4
Indian Health Services	2.3	2.5
National Institutes of Health:	46.0	49.5
National Cancer Institute	29.7	31.9
National Heart, Lung, and Blood Institute	7.1	7.4
National Institute of Neurological and Communicative Disorders and Stroke	4.7	5.1
Other, NIH	4.4	5.1
Office of the Assistant Secretary for Health:		
National Center for Health Statistics	43.3	38.5
National Center for Health Services Research	1.6	1.5
Office of the Assistant Secretary for Human Development	1.2	1.6
Office of the Assistant Secretary for Planning and Evaluation	7.4	6.0
Social Security Administration	22.9	23.5
Department of Housing and Urban Development:		
Community Planning and Development	2.4	2.6
Housing	2.5	2 6
Policy Development and Research	9.1	11.6
Department of the Interior:		
Bureau of Mines	16.1	19.6
Fish and Wildlife Service	7.7	10.8
U.S. Geological Survey	7.9	8.2
Other, agency not specified[2]	5.4	5.7
Department of Justice:		
Bureau of Justice Statistics	12.5	14.6
Drug Enforcement Administration	1.5	1.2
Federal Bureau of Investigation	1.4	1.9
Law Enforcement Assistance Administration	1.0[3]	—
Department of Labor:		
Bureau of Labor Statistics	102.9	111.9
Employment and Training Administration	17.5	20.2
Employment Standards Administration	.6	.5
Mine Safety and Health Administration	2.6	3.0
Occupational Safety and Health Administration	7.1	7.1
Department of Transportation:		
Office of the Secretary	.3	.5
Federal Highway Administration	4.4	4.6
Federal Railroad Administration	.8	1.0
National Highway Traffic Safety Administration	—	.1
Research and Special Programs Administration	.8	.7
Urban Mass Transportation Administration	14.8	18.0
Department of the Treasury:		
Customs Service	3.4	3.6
Internal Revenue Service	14.6	16.2
Office of the Assistant Secretary for International Affairs	1.4	1.4
Civil Aeronautics Board	3.1	3.7
Environmental Protection Agency	48.8	54.9
Federal Home Loan Bank Board	3.7	4.0
Federal Trade Commission	2.0	2.2
Interstate Commerce Commission	1.4	1.8
National Aeronautics and Space Administration[2]	27.7	29.4
National Science Foundation[2]	26.8	27.5
Securities and Exchange Commission	1.5	1.7
Small Business Administration	1.1	1.5
Veterans Administration	13.6	15.0
PERIODIC PROGRAMS		
Department of Commerce:[4]		
Bureau of the Census:		
Economic Censuses	9.8	8.5
Census of Governments	.8	.9
Census of Agriculture	10.6	8.7

Agency	FY 1980 Actual[1]	FY 1981 Estimate
CURRENT PROGRAMS		
1980 Census of Population and Housing	673.3	139.6
Intercensal demographic estimates	2.4	11.0
Mid-Decade Census	.3	—
Periodic program geographic support	2.3	3.7
Data processing equipment	2.6	3.2
General administration and other	(2.6)[5]	(1.0)[5]

[1]Increases relative to figures reported in Table 1, *Federal Statistics*, 1979, generally reflect the reporting of additional statistical program elements.
[2]Includes funding for the National Climate Program.
[3]Reflects transfer of activities to the Bureau of Justice Statistics.
[4]Total operating costs funded.
[5]Parentheses indicate negative number.

TABLE 2. APPROPRIATIONS REQUESTED IN THE PRESIDENT'S BUDGET FOR FISCAL YEAR 1982 FOR STATISTICAL AGENCIES
(in millions of dollars)

Agency	1982 Estimate
Bureau of Economic Analysis	17.4
Bureau of Industrial Economics	7.4
Bureau of Justice Statistics	17.1
Bureau of Labor Statistics	123.0
Bureau of Mines, Minerals Information and Analysis Directorate, BOM	21.5
Bureau of the Census:	
Current	60.6
Periodic	95.7
1980 Census of Population and Housing	42.3
Economics and Statistics Service	100.2
Energy Information Administration	80.0
Internal Revenue Service, Statistics Division, IRS	16.5
National Center for Education Statistics	9.9
National Center for Health Statistics	38.9

Report of the International Statistical Institute Committee on the Integration of Statistics

By J. W. Duncan

Chairman, 1976-1977 and Rapporteur, 1978-1979

and

J. Durbin

Chairman, 1978-1979

Editor's Note: *The International Statistical Institute has been interested, for many years, in the promotion of the integration of statistical activity and cooperation among the many different categories of statisticians. The General Assembly of the ISI, at its 40th session in 1975, established a Committee to examine problems associated with the widening gaps among the various areas of statistical activity. The full text of the Committee's report is reprinted here.*

Members of the Committee

J. W. Duncan (USA)
J. Durbin (UK)
F. Azorin (Spain)
F. El Boustani (Syria)
D. Brillinger (Canada)
J. Kazimour (Czechoslovakia)
S. Kuzinski (Poland)
K. Matusita (Japan)
R. P. Mentz (Argentina)
T. H. Montenegro (Brazil)
M. N. Murthy (India)
C. P. Parel (Philippines)
F. Rosenfeld (France)
M. Sicron (Israel)
S. Tulya-Muhika (Uganda)

Summary

Introduction.—The General Assembly of the ISI at its 40th Session established a Committee to study the gaps between various categories of statisticians and to report to the General Assembly concerning recommendations which will lead to minimizing such gaps in the future. The terms of reference for the Committee were:

A. To study the phenomena that different categories of statisticians are often unaware of, and disinterested in, each others' professional achievements, and apparently lack adequate appreciation for the interrelationship of their respective work;
B. To recommend ways and means to promote a closer collaboration and improve mutual understanding between these categories of statisticians;
C. To support specific program activities which may be undertaken by the ISI and which require the joint collaboration of statisticians of different specializations.

Nature of the problem.—The establishment of the Committee arose from the Presidential address of P. J. Bjerve to the 40th Session of the International Statistical Institute in which he expressed concern about the growth of gaps between different categories of statisticians. The basic problem was identified as a lack of communication. As specialization has increased in the branches of statistics, specialists have developed their own techniques, journals, conferences and seminars; statisticians' theoretical and practical concerns have become limited, as have their contacts with colleagues in other specialities. The growing complexity of the statistical field has intensified the problem of lack of communication.

Statisticians presently fall into three general categories: the Academic Statistician, the Statistical

Data Specialist, and the Subject Matter Analyst. Various gaps occur among fields and categories of statisticians. One prominent gap is that between theoretical workers and practicing statisticians. Another is the gap between statisticians in developed countries and those in less developed countries.

Fact finding.—In addition to examining the literature and finding continuing preoccupation with the gap between theory and practice and with communication problems, the Committee distributed an inquiry to the membership of ISI in December 1977. The inquiry solicited views on 'the problem of gaps between different categories of statisticians and the responses identified seven kinds of gaps.

Respondents to the inquiry noted the tendency for participants in statistical conferences to take part only in those sessions dealing with their own specialization. The high degree of specialization was blamed for the gaps, and a cause cited was the education and training of statisticians. Universities were thought not to have decided whether they are "tool makers" or "tool users." Other problems cited included the tendency of journals to record primarily academic research, the tendency of academicians to consider government or industry statistics as being of lesser importance, and the proliferation of independent professional associations.

The Committee also solicited and obtained 20 country reports concerning seven major themes. In most countries statistical education and training are provided by universities and tend to be theoretical in emphasis. Government statistical offices are unable to influence such training to suit their own requirements and such offices typically do not have their own training facilities.

As regards work in statistical offices, the conceptual and methodological challenges of such work are not well understood by outsiders and those offices tend to represent a closed circle of communication among themselves. Statistical offices are frequently management oriented and little inclined towards keeping abreast of technical developments in the field. The problem of communication is such that there do not exist conditions conducive for an exchange of views among statisticians from government, the private sector, and academic institutions.

The communications gap between theoreticians and practitioners is said to be widening. The problem is exacerbated by the fact that statisticians in different specialties are often not interested in intercommunication. Some countries have promoted exchange arrangements or joint programs, for example, between academic and government statisticians, although administrative difficulties arise. Where successful, such arrangements appear to have brought fresh thinking to statistical offices and valuable feedback to universities. Use of consultants and advisers from universities in government and business is also resorted to. Reporting in journals tends to favour theoretical and academic statistics; submissions by practitioners are often rejected as being of insufficient technical interest. Many statistical associations conduct programs to promote integration of statistics. In some countries, government and business statisticians dominate the associations; in others the academicians are in the ascendancy.

What is being done.—The Committee asked a number of people to give information on national practices. The initiatives currently underway to bridge the gaps which were reported by various countries fall into three categories.

1. Education and training in theory and application of statistics.
2. Institutional arrangements in government statistical offices, universities, and business.
3. Activities of national and international statistical societies.

What should be done.—The Committee has identified five major categories where improvement could be made to reduce gaps:

1. *Education and training in theory and application of statistics.* Although the educational processes for developing statisticians are quite diverse, it is clear that statistical education and training in any society should be geared to the needs of that society. The Committee formed the impression that statistical education generally places over-emphasis on theoretical studies. A consequence of this condition is that students are not properly educated for the type of work they subsequently pursue. Hence a better balance is needed in university education between theory and practice.

2. *Institutional arrangements in government statistical offices, universities, and businesses.* The Committee became convinced that existing institutional arrangements are often at the source of presently

observed difficulties. The university teacher/researcher who works on applied problems may be restricted in promotion prospects because of inability to get results published in refereed journals. In statistical offices, anonymity of publications reduces professional visibility and discourages professional discourse.

3. *Activities of national and international statistical societies.* National and international societies hold an important key to enhancing the integration of the profession. Professional associations should strive to promote communication among various categories of statisticians through dissemination of research results, organizing of cross-cutting seminars, and development of conferences to bring together analogous problems drawing subfields together.

4. *Career structure for applied and academic statisticians.* There is tension between various branches of the profession which could be reduced by development of greater respect among diverse elements of the profession. Promotion prospects of theoreticians should be enhanced by evidence of interests in applications and those of applied workers should be enhanced by evidence of interests in new developments in methodology.

5. *Readability and unreadability of statistical literature.* Increasing specialization results in specialized sets of terminology and procedures. While it is unlikely that the total style and specialization of statistical articles can be revamped, the Committee proposes that journals devote more effort to encouraging review articles which survey literature in a subsector and introduce the nonexpert to essential ideas and basic concepts.

RECOMMENDATIONS TO THE ISI

1. *The International Statistical Institute should regard the integration of statistics as one of its major objectives.* The report of this Committee and the report of the Conference on the Transfer of Methodology Between Academic and Government Statisticians should be sent to all statistical associations, together with a formal request for consideration of the Committee's report. The ISI should develop research projects where there is an opportunity for bridging gaps within the profession. If the ISI organizes a series of recurrent symposia, the Committee suggests special attention should be given to integration by including statisticians of different categories.

2. *The* Review *of the International Statistical Institute should give a high priority to papers which will make a contribution to bridging various gaps within the profession.* Invited papers in the *Review* should summarize various fields within statistics, highlighting recent methodological innovations in simple terms. Authors should be encouraged to bring together theory and applications whenever possible.

3. *The Committee on Training and Education should review curricula in statistics with a view toward promoting a core educational program which will improve the student's ability to reach out into various specialized branches of statistics.* In offering assistance to developers of curricula and in assisting regional institutions, the ISI should update curricula to give students an introduction to the branches of statistics and awareness of the benefits of drawing parallels among subsectors of statistics.

4. *The Program Committee for the biennial session of the International Statistical Institute should ensure that several sessions will be organized for each meeting with the aim at least in part of improving integration within the profession.* Within the biennial session it will be necessary to establish time periods for plenary sessions designed to appeal to the entire profession. At least one such time period should be organized in the next two biennial sessions which is identified with the integration of the profession. Organizers of sessions should arrange juxtaposition of developments in theory with illustrations of practical applications.

Full Text of Committee's Report

Preface

During the 40th Session of the International Statistical Institute held in Warsaw in September 1975, the General Assembly resolved to set up a committee to study the gaps between various categories of statisticians and to report to the ISI General Assembly concerning recommendations which will lead to minimizing such gaps in the future. This action by the General Assembly underscored the increasing attention which has been focused on the existing and widening gaps between theoretical developments and their practical applications in statistical fields, as well as in other disciplines. The need to improve communication and cooperation between theoreticians and practitioners was discussed by Petter Jakob Bjerve in his Presidential Address to the 40th Session of the International Statistical Institute.

The Bureau of the ISI set up the Committee on the Integration of Statistics in 1976 with the following terms of reference:

A. To study the phenomena that different categories of statisticians are often unaware of, and disinterested in, each others' professional achievements, and apparently lack adequate appreciation for the interrelationship of their respective work;
B. To recommend ways and means to promote a closer collaboration and improve mutual understanding between these categories of statisticians;
C. To support specific program activities which may be undertaken by the ISI and which require the joint collaboration of statisticians of different specialization.

The initial Committee was chaired by Joseph Duncan until the 41st Session of the ISI was held in New Delhi in 1977. James Durbin served as Chairman from then until the committee was disbanded in December 1979.

The Committee members exchanged views through correspondence, held meetings during the 41st Session of ISI, participated in a seminar organized by the American Statistical Association in March 1978, and collaborated in production of this report. The report was presented to the General Assembly of the ISI in its 42nd Session in Manila in December 1979. Comments and suggestions received at that time are incorporated in the present version of the report.

The Committee members wish to express their appreciation to all members of the International Statistical Institute who have offered ideas and suggestions to the Committee during the past several years.

Chapter I. Nature of the Problem and the Committee's Approach to It

In this opening chapter, the Committee presents a background discussion on concern about the problem and then presents various elements of the gaps which are developing among various types of statistical activities in diverse subject areas.

BACKGROUND OF CONCERN ABOUT THE PROBLEM

At the 40th Session of the International Statistical Institute in Warsaw, Poland, the ISI President, Petter Jakob Bjerve, expressed concern about a growing gap between theoretical and practical statisticians and about problems relating to the increasing specialization in various subject matter areas within statistics. In his address he pointed out, "It seems clear that statisticians working in different fields have the same ultimate object and are also dependent upon one another". Consequently, they can obtain benefit from mutual communication and cooperation, both at the national and international level.

"An obstacle to cooperation between statisticians is the fact that they deal with subjects of so many kinds and of such a diverse nature, the range of technical skills needed is extremely wide." (Bjerve, 1977.)

In elaborating on this problem, Bjerve pointed out that one specific manifestation of the gap is the lack of communication between theoretical or academic statisticians and official or governmental statisticians. He stated, ". . . Although modern sampling methods have enabled statistical agencies to immensely improve their methods of collecting raw data, these agencies have not, by any means, succeeded in taking similar advantage of statistical theory within other areas. Very few agencies have, for instance, been able to apply valuable methods of quality control, modern theories on robustness, methods for detection of outliers, contingency table analysis, and analysis of regression and variance. . . ."

"Thus, our feeling of satisfaction with the progress made in both fields is mixed with worries about the wide gap existing between official statisticians and academic statisticians. Professionally, these two groups of statisticians seem to be living in two different worlds without communication in between." (Bjerve, 1977.)

The concerns of Bjerve were echoed in a panel discussion on Communication and Cooperation Between Theoreticians and Practitioners held by the Asian Statistical Institute in November 1976, and in the Presidential address by Leslie Kish before the American Statistical Association in August 1977. After agreeing with Bjerve's statements, Kish notes, "The time has come for better integration of theory with application. Theory should improve the quality and efficiency of applied work. Simultaneously, applications must be the testing ground for statistical theory and methods and must pro-

vide the motivation for further advances." (Kish, 1977.)

After identifying a number of possibilities for addressing this gap, Kish concludes by noting, "We need the good name of statistics for our field in our Association, and we need it to unite the efforts of theoretical and applied statisticians. There is a common chain that links mathematical probability with statistical theory, and then with our methods, and these with our applications. To weaken or break that chain anywhere is harmful to all." (Kish, 1977.)

Following Bjerve's address and earlier discussions of this problem within the International Statistical Institute, the Bureau of ISI formed the Committee on the Integration of Statistics. It was recognized that the need for integration was now acute because of the rapid development of various areas of statistics in recent decades, and the increase of specialization within subcategories of the profession—specialties such as survey methodology, biometrics, mathematical statistics, official statistics, and many others.

Each of these fields has different objectives in the application of statistical methods. Thus statisticians working in different fields of applications have different interests which flow from their different objectives. Within each of these specialties a technical language and a set of procedures have been developed, and there is an unfortunate gap in transferring insights from one field of statistics to others. Thus, where there was initially a gap between the theoretical and the applied there are now gaps between subcategories of the various theoretical branches and applied branches.

The gap between the academic and theoretical community and national statistical offices was a particular concern to Bjerve. This particular gap received specific attention at a seminar organized by the American Statistical Association held in Reston, Virginia, on March 8–10, 1978. The report from that seminar entitled, Conference on Transfer of Methodology Between Academic and Government Statisticians makes a number of suggestions to ensure:

1. closer working relations between academic and Government statisticians;
2. sustained professional development of government statisticians; and
3. methods for introducing practical problems into academic programs.

In summarizing the conference, Sir Claus Moser, then Chief Statistician for Great Britain, noted that he was impressed by the fact that, while this is an important problem, there are many things which can be done to improve communications between Government and academic statisticians. (Moser, 1978.)

This view expressed by Sir Claus Moser is shared by the Committee on Integration of Statistics with regard to the more general problem of the various gaps which exist within the statistical profession. The Committee's basic conclusion is that there is much that can be done to bridge various gaps and that, in fact, the problems resulting from specialization within statistics are no more serious than those in many other scientific fields. Nonetheless, the Committee feels that concrete action should be taken to arrest and correct the problems which have surfaced in the various fields of statistics.

NATURE OF THE PROBLEM

In essence, the above commentators, as well as many correspondents with the Committee, have identified the basic problem as a lack of communication. With increasing specialization in the several branches of statistics, the workers in each field develop their own techniques, establish their own journals and other means of communication, and organize their own conferences and seminars. As the range of theory expands and the practical applications become correspondingly diverse, the statisticians' theoretical and practical concerns become limited to only part of the field and their contacts with statisticians in other areas are quite restricted.

The problem becomes intensified as education programs respond to the complexity of the scientific field. While the total field expands, it is essential to keep the core curriculum general and solid in building the base for the various specializations. Inevitably this means that, as new applications and techniques are developed, only a few new concepts or applications can be accepted into the core curriculum, while the increasing sophistication of the specialized fields is intensified as the specialist literature grows.

The communications problem is most acute in the gap between theory and application. Some of the correspondents with the Committee expressed the view that persons focused on applied areas tend to do a poor job of clearly identifying for the theoretician the problems which need to be addressed. Likewise, as solutions or new methods are developed by the theoretician, inadequate effort is made to demonstrate how the new techniques can be applied. The communication gap between the theoreticians and the practitioners forms a vicious circle. Theoreticians tend to do desk research. They often draw their research problems from other theoreticians' research, not directly from the real world. While the academicians too often fail to enrich their instruction and research with real life problems, practitioners do not formulate and present their problems to those theoreticians who have the time, the know-how, and the resources to solve them. Without the explicit statement of real problems by the practitioners, much academic research tends to be conducted for its own sake, lacking in relevance and applicability to the needs of practitioners.

CATEGORIZATION OF DIFFERENT TYPES OF STATISTICIANS

In his Presidential address, Bjerve identified three principal categories of statisticians: (1) the academic statistician; (2) the statistical data specialist; and (3) the subject matter analyst. As will be shown later in this section, there are a number of additional distinctions which can be made; however, the basic problem of communication which derives from these categories can be illustrated best by this more simplified division. To illustrate the difficulties of communication, it is helpful to consider the concerns of each of these categories.

The academic statistician.—As noted earlier, academic statisticians relate both to the core material and to highly specialized areas. The work of interest to academic statisticians can be characterized to include such things as mathematical statistics (including probability theory and stochastic processes); the theory of statistical inference; the construction, fitting, and testing of models; multivariate analysis; time series analysis; design and analysis of experiments; and the theory of sampling. While many other topics could also be identified, this list illustrates the type of work which is of primary interest to academic statisticians.

The statistical data specialist.—The second category, statistical data specialists, includes people involved in a wide range of applications. They are frequently interested in topics such as the precise definition of terms and concepts related to collected data, the techniques of measuring and collecting the data, the use of census and sampling methods, the development of methods for elaborating and presenting statistics after the data are collected, the organization of statistical services and the development of standards for national and international normalization of statistics. These statistical data specialists work in industry, in Government, and in research agencies inside and outside universities.

The subject matter analyst.—This group is even more diverse in that subject matter analysts are found in many specific disciplines. Within their disciplines they are interested in topics such as the precise definition of concepts which relate to the discipline, the particular methods of measuring and collecting data concerning the discipline, and particular methods of treating and analyzing the information relating to the discipline. Much of their work may be highly specific to the discipline concerned and may not be susceptible to straightforward application elsewhere.

As a result of examining these listings, some problems immediately appear. The academic statistician is more easily distinguished from the other two types in that his focus is on fundamental theory and general principles. Statisticians in this category are involved essentially in research and the teaching of these subjects. They are often isolated from real life applications to an undesirable degree.

The statistical data specialist and subject matter analyst, in contrast, have a certain amount of knowledge of the basic core of the subject which is the focus of the academic statistician, but their role is not specifically directed to extending the theoretical base nor to the teaching of it. Rather, their concern is work on application of a general statistical framework (statistical data specialist) or within the framework of a particular subject (subject area specialist).

Frequently, it is difficult to distinguish between the statistical data specialist and the subject matter

analyst since both apply the methods of statistics, with the statistical data specialists applying these techniques to a variety of subjects and the subject matter specialists focusing on more narrow disciplines. Thus, the statistical data specialist tends to focus on statistical methods, and the subject matter specialist tends to emphasize a particular subject area.

While the categories of statisticians appear to be clearly distinguished at first sight, the categories really blend together. Many academic statisticians are deeply involved in applications and the applications categories tend to blend into each other. In fact, many great statistical theorists, such as Pearson and Fisher, were highly involved in applied work.

To illustrate further the difficulty of categorizing various fields of statistics, the Committee on the Integration of Statistics developed a taxonomy of statisticians. Clearly, there are many variations which could be presented; however, the following list of 15 categories developed by the Committee emphasizes the variety in the field:

1. Academic (including university, college, school).
2. Business (including actuarial, marketing, economic, econometric).
3. Government (including federal, state, local, municipal).
4. Industrial (including operations researcher, quality controller, reliability worker, physical, engineering, transport).
5. Practitioner (including applied, data analyst).
6. Research (including applied, methodological, theoretical, mathematical, probabilist).
7. Student.
8. Biometric (including ecological, agricultural, forestry).
9. Medical (including biostatistician, health, epidemiologist, pharmaceutical).
10. Social (including demographic, political, judicial, criminal, behavioral, psychological).
11. Administrator (including manager, policy former, planner, forecaster, auditor).
12. Consulting.
13. Computational (including simulator, computer programmer, package writer).
14. Survey (including pollster).
15. Other (including sports, numerologist).

In what follows, we will keep this taxonomy in mind while discussing the gap problem.

Types of gaps which exist among fields and categories of statisticians.—There are a variety of gaps which can be identified within the various fields and branches of statistics. Each type of gap is briefly introduced in this section.

Gaps between theoretical workers and practicing statisticians.—During much of the discussion above it has been stressed that there are gaps between theoretical workers and practicing statisticians. However, that is an oversimplification. There are also gaps within the various methodological approaches used by both the theoreticians and the practicing statisticians.

A sizeable gap among theoreticians exists between Bayesians and non-Bayesians. When the logic of statistical inference is under discussion and representatives of both groups are present, the discussion sometimes becomes quite heated. The resulting conflict of testimony can certainly give rise to confusion and uncertainty among students and practitioners. This confusion and uncertainty is likely to extend the communication gap.

The Committee adopts the view that when confronted with practical problems in the real world, even statisticians who have been educated from different ideological standpoints will usually come to very similar conclusions, as indeed they must if the science of statistics is to retain any credibility with users. Consequently, we see no need to suggest any attempt to inhibit the discussion among the specialists or to make choices about methodological approaches. However, we suggest that when dealing with students, teachers should strive to be tolerant and eclectic and to teach the best features of the main competing schools of inference, rather than set out to recruit followers for systems of inference they personally prefer.

Gaps between statisticians in developed countries and those in less developed countries.—Up to this point in the discussion there has been an implication that the character of the problem is the same throughout the world. This, of course, is not the case. The character of statistical activities and the nature of statistical organizations vary widely among different countries. In a later section of this report, information will be presented on activities in various countries which are designed to find methods for bridging the various gaps which have been

identified. However, for this introductory section, it is useful to discuss some of the gaps between statisticians in developed countries and those in less developed countries. The statisticians in less developed countries have special difficulties in keeping up with advances taking place in developed countries as a result of several factors including:

1. The heavy teaching load of university statisticians in developing countries, coupled with heavy demands on their time from outside sources, results from a scarcity of highly trained professional statisticians qualified for university teaching.
2. As a result of limited budgets for travel and professional training, statisticians from developing countries are not exposed to new developments in statistical theory/methodology.
3. Hard currency restrictions make it difficult for statisticians in developing countries to obtain journals or books or to join overseas statistical societies. Further, when libraries are established they are frequently too thin in coverage to provide the range of cross-reference facilities which are necessary if local statisticians are to keep up with new developments.

In evaluating the gaps between statisticians in developed countries and less developed countries, three categories deserve attention:

1. Those countries, like India, which could be said to be statistically developed.
2. Those countries, like the Philippines, *etc.*, which have passed the beginnings of development in statistics, but have not yet developed fully in the field.
3. Those countries, like many of the newly independent nations of Africa, which have hardly started an independent development in statistics.

The gaps that exist between statisticians in developed countries and less developed countries are partially institutional in that they are related to the earlier colonization of the less developed countries by the developed countries. This means that the statisticians of the less developed countries learn their statistics in an educational system whose basic structure was received from the colonizing nations, as well as the fundamental approach to scientific education (e.g., the approach to mathematics, the importance placed on theory as opposed to applications, etc. in all knowledge). It also means that governmental statistics are likely to be predetermined by the statistical system set up by the colonizing power.

Representatives from the less developed countries indicate that a serious problem exists in the realm of official statistics. In their view, government statistics are most often tailored to meet the needs of international agencies like the United Nations, the International Bank for Reconstruction and Development, the International Monetary Fund, etc. These large organizations typically develop classifications and definitions which are presented to the less developed countries as the framework for developing their statistical programs. This leads to two problems. First, the less developed countries are obliged to compile data which they might not otherwise compile in order to meet internationally imposed needs; as a result, there is a diversion of the available statistical resources from activities which might be more in the interest of the countries concerned. Second, the definitions and classifications which are imposed by such international agencies seem, in the eyes of many statisticians in developing countries, to be designed more to be used by developed countries, rather than by the less developed countries.

Even in training there are some problems since the courses designed in developed countries are exported to the less developed countries. Inadvertently, nationals of less developed countries receive exactly the same training as nationals of developed countries, bringing back a sophistication which may not be suitable to their own national needs.

A significant factor affecting the export of training has to do with *statistical technology*. Statisticians in developed countries work with huge, latest-generation computers; those in less developed countries work with second-hand computers, one or more generations old (e.g., size of core memory likely to be much smaller on less developed countries' computers which, in turn, limits the sophistication of the statistical computing which can be carried out). Statisticians in developed countries concern themselves with telephone and mail surveys; those in less developed countries do not have adequate telephone and postal systems, so that the concerns of telephone and mail survey researchers are irrelevant to less developed countries. Statisticians in developed countries have highly devel-

oped, computerized mapping and cartographic capabilities at hand; those in less developed countries do not.

A further problem in the developing countries is that the individual statistician is likely to experience professional isolation since the total number of well-trained statisticians in his country is very limited. Unfortunately, this leads to a reduction in research interests because of the lack of professional contact, and the result is that only limited publications and research flow from the less developed countries to the broader profession. Finally, there is the problem of the brain drain. A number of trained statisticians in less developed countries leave their countries to seek better opportunities either in developed countries or with international institutions and agencies. Thus, the flow of statisticians from less developed countries to developed countries further exacerbates the problem.

There are some simple steps which developed country statisticians could take to assist their colleagues in developing countries. As one example, developed country statisticians might donate personal copies of professional journals to developing country universities with, say, a lag of two years. The developed country statistician can almost always find the journal in a nearby library whereas his developing country colleague might wait years to see it. Doubtless there are many other actions which concerned individuals could undertake to close this gap.

Chapter II. Fact Finding

A general discussion of the various gaps which exist among subparts of the statistical profession was undertaken to initiate the Committee's work. It is clear that there are many dimensions of the problem, and that it is expressed in different ways in various fields, in various regions, and in various organizational settings. This made the task facing the Committee very difficult, particularly since it is comprised of individuals working on the problem on a voluntary basis and without any real resources or budget for support.

Given the limited resources of the Committee, a work program was devised to maximize the information gathering and fact finding which could be accomplished on a voluntary basis. The overall approach of the Committee was to exchange ideas through correspondence, to review the general literature relating to the problem, and to solicit widespread input from the membership of the International Statistical Institute. The latter activity involved an inquiry which was distributed by the permanent office of the International Statistical Institute in December 1977 following the first meeting of Committee members at the 41st Session of the ISI in New Delhi. In the membership inquiry, the permanent office requested individual members to provide their views on the problem of gaps between different categories of statisticians. In the letter of inquiry, seven aspects of the issue were identified. They were:

1. How present methods of education and training of statisticians contribute to the problem.
2. How the nature of statistical work in government statistical offices contributes to the problem.
3. Whether and how specialization contributes to the problem.
4. Whether or not the problem is essentially a communications problem.
5. Possibility of exchange arrangements between statisticians working in government, statisticians working in private organizations, and statisticians in academic institutions.
6. Whether and how the present structure and function of statistical associations (both national and international) contribute to the gap.
7. Whether and how the method of reporting statistical research results and practical experience in professional and other journals contributes to the problem.

As a result of the inquiry, the Committee has received a substantial volume of correspondence from members of the International Statistical Institute. This has been particularly helpful in providing material for Committee discussions. Many of the views expressed in individual letters have been incorporated into the present report. In addition, members of the Committee prepared statements concerning experiences in their own countries and, as a result, a series of statements has been developed to illustrate how individual aspects of the problem are addressed in various countries.

In addition to holding meetings during the New Delhi session, several Committee members were able, through travel necessitated by other activities, to continue their dialogue on this problem. Several members of the Committee participated in the

seminar sponsored by the American Statistical Association on the subject of The Transfer of Methodology Between Academic and Government Statisticians. Following that seminar, a meeting of Committee members present provided an opportunity to develop further suggestions for this report. Some major results of the fact finding effort are included in this chapter.

A BRIEF LOOK AT THE LITERATURE

The gap between theory and practice in statistics has been discussed in the statistical literature from time to time in the last three decades. A search of several major statistical journals *(The Journal of the American Statistical Association, The Journals of the Royal Statistical Society,* and the *Bulletins and Proceedings of the International Statistical Institute)* for material on the gap between various types of statisticians brought articles, papers, and addresses which are listed in the bibliography at the end of this report. The search emphasized the period after 1960. While the bibliography is not intended to be totally comprehensive, it does include several citations beyond the journals listed above.

The literature review indicated that the subject of the gap has been one of the central themes in the inaugural addresses of presidents of various statistical societies. Fisher, Kendall, Yates, Bjerve, and Kish are among those who have dealt with the subject. Kendall (1968), for example, in discussing the future of statistics, pointed out that efforts should be made to prevent the rift between theory and applications from widening.

Yates (1968), in discussing the problem of the gap, claimed that some theoretical branches of statistics have become pathological. The gap between theoretical and practical statistics has distorted teaching so that separate branches of activity have developed their own thought and methodology. Yates noted further that the development of separate branches creates specialized journals and societies. He criticized some of these journals for their irrelevance ("Statistical journals being cluttered by vast amounts of rubbish. 'A' publishes a paper which is irrelevant or based on unrealistic premises. This stimulates 'B' and 'C' to further thoughts on the same lines and in a few years a body of literature is built up . . .").

In all of the above citations, and the same approach could be cited in other writings, the negative consequences of the gaps are shown and criticized. The gap is discussed in connection with the functions, organization and curricula of statistical education and training. Committees, publishing reports on statistical education, criticize the curriculum of statistics as found in statistical departments. The emphasis on theory and mathematics and the lack of practical problem solving is mentioned as one major cause for the gap. On this topic, Box (1976), for example, wrote, "The highest objective of the teacher of statistics was to produce a student who would be another teacher of statistics . . . ." Or, as Kish pointed out (1977), "Research and teaching in many departments have become divorced from applications, from empirical data, from the real world." Fisher was quoted by Box (1976) as writing in a letter (1952) about a center for the teaching of statistics: "Such a center should plan to integrate teaching with project work in which practical experience can be gained by those who are capable of learning from it, in contradistinction to the ruinous process of segregating the keener minds into a completely sterile atmosphere . . . ." To quote Kish once again, "Theory should improve the quality and efficiency of applied work. Simultaneously, applications must be the testing ground for statistical theory and methods and must provide the motivation for further advances (1977)".

Thus we see a continuing attention in the literature to the gap between theory and practice as well as the communication problems among the many specialized areas of statistics.

MEMBERSHIP INQUIRY

The views which are expressed in the literature were extended by comments received in correspondence from many members of the International Statistical Institute. Many of the replies came from developed countries, although a few contributions were received from developing countries.

Most of the writers pointed to the existence of a gap although the nature of the gap addressed was frequently different in individual letters. The gaps which were discussed included those:

1. Between different functions of statistics: descriptive, explanatory, or predictive:
2. Between different kinds of activities:
   a. pure mathematical statistics practiced by university teachers not involved in activities outside the academic framework;

b. development of new methodology (like data analysis, using actual data to pose problems and test new proposals) mostly carried out in research institutions;
c. collecting and interpretation of routine data (carried out mostly by government and large firms);

3. Between producers of statistical data and users of such data; and
4. Lack of statistical knowledge shown by scientists in other fields, including the natural sciences, medicine, etc.

In the letters, some writers emphasized that many contacts between various types of statisticians do exist in meetings of statistical societies and other gatherings where various kinds of statisticians meet. However, it was noted that there is a tendency for participants in statistical conferences to take part only in those sessions dealing with their own field of specialization. This tendency is sometimes reinforced by the scheduling of sessions at statistical conferences. It is not uncommon to find that meetings concerned with theoretical statistics and those concerned with applied statistics are scheduled at the same time, thus giving theoreticians a good excuse not to go to the applied sessions, and vice versa. ISI's biennial conferences have displayed this scheduling quirk in the past.

Most of the writers put the blame for the gap on the high degree of specialization, which is found not only in statistics but also in other scientific fields. Several persons commented that most specialization is unavoidable. However, specialization does bring isolation, sometimes without having the benefit of cross-fertilization between specialists. Several specific causes for the gap were mentioned in the correspondence, including the education and training of statisticians. Some writers pointed out that in some countries all categories of statisticians receive practically the same type of education, but a gap is found later among them depending upon their place of work. In other countries, two types of statistical education are found:

1. mathematical statistics where the mathematical science is stressed, and
2. subject matter statistics taught in faculties within subject matter areas.

This dual source of education is seen as an important reason for having different categories of statisticians.

Writers further pointed out that different fields of application develop their own jargon. This discourages recognition of similar problems of solutions among various fields. Further, the current fashion of dressing up quite simple ideas in the latest mathematical formulation to make the result respectable to mathematicians creates a serious barrier to understanding among nonmathematicians.

Other problems cited in the correspondence included the tendency for scientific journals to become vehicles primarily for recording academic research without reference to possible applications, a tendency for academic statisticians to consider the work of governmental statisticians or industry statisticians to be of lesser importance on the ground that it is not technical enough, and finally that the existence of independent professional associations within the statistical profession intensifies the gap.

A large number of proposals for closing the gap were contained in the correspondence and these will be included in later sections of this report.

AN OVERVIEW OF EXPERIENCES IN VARIOUS COUNTRIES

As part of its factfinding work, the ISI Committee on Integration of Statistics asked a number of individuals to describe the situation in their respective countries regarding:

1. Adequacy of statistical education and training;
2. The nature of work in statistical offices;
3. Problems of specialization;
4. Gaps in communication among statisticians;
5. Arrangements for exchange of personnel;
6. Reporting of research in journals;
7. The role of national and international associations.

Reports covering about 20 countries were obtained. The level of detail in these various reports varied considerably. In addition, the comprehensiveness of the replies varied. Nevertheless, it is possible to provide a broad overview of the comments which were recieved. The following paragraphs identify some of the findings.

Statistical education, training, and research. — All of the reporting countries indicated that statistical education is provided mainly by universities. The

education in most universities is essentially theoretical in nature with a substantial emphasis on mathematical statistics, and does not generally cover in depth practically oriented topics such as sample survey practices, quality control procedures, systems of national accounts, use of computers in statistical work, etc. However, in some universities statistics is taught as part of subject matter courses with emphasis on applications. There is some concern about the adequacy of statistical education in its present form for statistical work in statistical offices of the government and other public-service institutions. It is also mentioned that statistical education is not adequately adjusted to real life situations. It is stated that many universities have failed to decide whether they are training tool-makers or tool-users, and that most people subsequently work as the latter after having been trained as the former. Further, it is reported that insufficient stress is placed on the notion of statistics as a profession and this had led to a lack of a sense of belonging among different categories of statisticians.

In most countries the statistical offices have not been able to influence the content of the university courses to suit their requirements. However, attempts at this have been made in countries with a regulated and planned social system. A strong plea is made to include, as part of the compulsory core in statistical education, courses on applied fields with some emphasis on data production aspects. If this is to be achieved, some writers believe that there is a need for text books dealing with the work of statistical offices. The suggestion is not to dilute the university courses unduly with more practical work, but to bring about a balance between theory and practice by relating theoretical teaching to practical work through illustrations and exercises from real life situations. At present few institutions have a course tailor-made to provide basic training for those who wish to be government statisticians.

A few countries report training facilities in statistical offices or in professional institutions which help in bridging the gap between university education and the requirements of statistical offices. In one example, part of every doctoral candidate's training program is a period of work in the national statistical office. However, even in such countries, these facilities are limited and can benefit only a few graduates coming out of the universities. Thus many graduates join statistical offices without specific training and have to learn on the job after employment.

Since many governments recognize only university courses in statistics, there is no incentive for the prospective candidates to undergo non-university professional courses even when such facilities exist. It is therefore desirable to have courses in the universities more responsive to the needs of the statistical offices. It is also suggested that as part of university education in statistics, some training should be given in statistical offices of the government or of the private institutions. Statistics, being basically an applied subject, should be related to real life situations through appropriate illustrations and exercises. Booklets for the information and education of the general public would also be helpful.

It is pointed out that much of the research published in statistical journals has become incomprehensible to practitioners. One basic reason is that most of the papers are addressed to an audience with a strong background in mathematics. The variety of notations and terminology used also makes it difficult for practitioners to understand the papers. Further, statistical techniques and methods developed by theoreticians are often based on restrictive assumptions that are not satisfied in practice. It is important to develop simpler techniques with more realistic assumptions. It is also desirable that theoreticians stress the possible applications of their work to practical problems.

Work in statistical offices.—The work in government statistical offices is of necessity concerned with production and dissemination of statistical data. It is difficult for outside statisticians to appreciate the conceptual and methodological challenges of practical statistical work of this type and to recognize the opportunities for possible involvement in such work. It is desirable that government statistical offices better publicize their conceptual, methodological and applied statistical work and formulate their problems in areas where academic statisticians could help. The ISI and the UN and its specialized agencies should aid in this process by developing manuals and guidelines on applied statistics.

At present most of the interchange among official statisticians with respect to development of concepts, methods, and procedures applicable to practical work such as systems of national accounts, census and survey methodologies, standards, classification manuals, etc., is undertaken within a fairly closed circle of national and international statistical agencies with little or no input from

academic statisticians. Further, a good deal of the time of government statisticians is spent in adapting common and standard techniques and methods to particular subject-matter situations. Often the practitioners have neither the time nor the interest to develop new methodologies to overcome problems faced in practice.

If in a statistical office there are statistical methodologists as a group typically moving from one subject to another, more interested in the process than in the subject itself, they may act as a binding force. However, if each subject-matter group has its own methodologists, this binding force is nonexistent. Similarly, it sometimes occurs that a large methodological unit becomes organizationally sealed off from statistical production and tends to work in a vacuum.

In many statistical offices data production has been routinized and the practitioners keep themselves busy with day-to-day problems of statistical management. They do not have the time or the motivation to attend seminars and conferences to learn about recent developments. Further, due partly to job security in government statistical offices, official statisticians have little incentive to learn new subjects, to refresh their knowledge and to do research in their fields of interest.

The diversity and speed of statistical development has discouraged practitioners from keeping up with modern developments in data production and analysis. Publications such as the *Statistical Abstract, Current Index,* and the *International Statistical Review,* which are meant to keep the practitioners well informed, have not fully served this purpose.

Problems of communication.—To effect better communication between different categories of statisticians, many countries have established statistical councils or advisory boards with representation from government, universities, and other institutions to advise the government on statistical standards and policy. This is a beneficial forum for exchange of ideas and views and generally leads to some amount of integration among statisticians. Though this system has worked fairly well in some countries, in others the effect of this system has not been perceptibly felt, possibly because these high-powered bodies may have difficulties in studying the problems in depth.

At the working level, many countries have reported that there do not exist conditions conducive for an exchange of views among statisticians from government, the private sector and academic institutions. There is a perceptible gap between applied statisticians and highly specialized methodologists, since the language of the latter is incomprehensible to the former. The communication gap between theoreticians and practitioners is acknowledged to exist in many countries and it is stated that it has been widening over the years.

Some countries have tried to overcome the communication gap by providing consultancy services to statistical offices inside and outside government with the help of theoreticians from universities and other academic institutions. The point was made that if practitioners would make a bigger effort to formulate their problems in methodological terms without emphasis on subject-matter or operational aspects, they might be more successful in interesting theoreticians in these problems. On the other hand, too little emphasis on clear presentation of the subject-matter problem sometimes results in the applied statistician coming to the theoretician with a counterproductive commitment to a specific design and a request for assistance with peripheral aspects of the design.

Some countries reported that the crucial point is not always poor communication; rather, there is a lack of interest on the part of academic statisticians in real life situations. There is a tendency to continue to do research on conventional problems which may have had some importance or relevance in the past but which may not be important in the changed circumstances of today.

Exchange arrangements.—Many countries have emphasized that exchange of personnel on short-term or long-term bases between government statistical offices and universities should be encouraged. Some countries have pointed out that before taking up interagency exchanges of personnel, intra-agency and intra-sectoral problems should be considered. Some countries have also reported problems in effecting exchanges of personnel between government statistical offices and universities—administrative difficulties, problems of seniority of staff members and attitudes toward problems. If exchanges of personnel could not be worked out, the suggestion is to have joint programs in which the government statistical offices and the universities could fruitfully collaborate.

Statistical offices in some countries have proceeded with recruitment of statisticians from the universities and other academic institutions in spite of the difficulties encountered. These arrangements have helped in bringing fresh thinking to statistical offices and some feedback to the universities. Another arrangement being tried out is promoting joint appointments by statistical offices and universities to enable the statisticians concerned to teach and guide research work in the universities and to undertake official statistical work on a part time basis. Use of consultants and advisors from universities and other academic institutions to assist the statistical offices to formulate and solve practical problems is also resorted to in some countries.

Reporting in journals.—As was mentioned above, several countries reported that statistical journals have become vehicles for recording academic research, often in abstruse terms using notations and terminology incomprehensible to the average practitioner, and without reference to possible applications. These reports suggested that the papers should use, as far as possible, standard notations and simple technical language with a glossary of terms and informative abstracts. It is reported that nonpublication of papers by practitioners is partly due to default and partly due to the present refereeing system under which papers describing applications of interest are rejected on the ground that they do not contain sufficient new methodology.

It is suggested that journals should give more prominence to articles on applied statistics and review articles, even if they have to be solicited. Editors of journals should urge authors to indicate any possible applications of their results and to provide concrete examples where possible. The present practice of devoting part of some statistical journals to applied work should be further strengthened. It is desirable that statistical journals have a section for formulating practical problems and possible solutions.

Statistical associations.—Many countries have stressed the role of statistical associations in integrating statistics and statisticians through dissemination of research results, organization of seminars, conferences and workshops, and providing expert advice on current problems of statistical practice. It is mentioned that at present the associations in some countries tend to cater to the needs of the theoreticians, with the result that their activities are usually out of reach of the average government or business statistician. In other countries the associations are dominated by government/business statisticians and make little or no effort to involve theoreticians in their activities. It is important that the statistical associations place equal weight on both theory and practice of statistics and serve as channels of communication between various categories of statisticians.

Chapter III. What Is Already Being Done About The Problem

In the preceding sections of this report, the Committee has stressed the growing recognition of problems associated with gaps among subsectors of the statistical profession. It has also identified a number of suggestions which have been made about how to deal with various aspects of the problem. In this chapter, the Committee will present a brief statement of some of the activities which are already under way to deal with gaps within the profession.

In developing its analysis, the Committee asked a number of people to contribute information on various national practices. These were not designed to provide a comprehensive statement of all of the activities in individual countries. Rather, the statements were prepared with a view that they would be suggestive of the differing national contexts for dealing with such problems as well as containing ideas which merit consideration by other countries.

The initiatives currently under way to bridge the gaps which were reported by various countries fall into three categories: education and training, institutional arrangements, and activities of statistical societies. The country reports concentrated primarily on current gaps or needs, and on recommendations for resolving the problems. As a result, comprehensive discussions of activities now conducted in each of the areas were not provided. Most of the current efforts noted are in the areas of training and institutional arrangements, with relatively few initiatives reported in the remaining categories.

EDUCATION AND TRAINING IN THEORY AND APPLICATION OF STATISTICS

In a number of countries, efforts are being made to bridge the gap between theory and application in

statistics through education and training activities. In Australia, for example, it was reported that academic statisticians are taking an increasing interest in official statistical work, and topics of concern in that connection are being included progressively in statistical courses. In India, where universities have been primarily concerned with theoretical activities, and official statistical work has been largely routinized, a series of seminars on the data base of the Indian economy has been organized with a view toward bringing together the theoreticians, the practitioners, and the users of official statistics.

The general intention of statistical education programs in Spain is to foster the knowledge, by the ordinary citizen, of some basic statistical ideas, in order to narrow the gap between statisticians and nonstatisticians. In addition, the report from Spain indicated that more than 5 per cent of the 250 university graduates of the Spanish National Institute of Statistics who have entered the government by competitive examination as senior statisticians are now teaching in university departments. Some are dividing their time between the government service and the university, while others have become either full time professors or full time government statisticians.

In Peru the National Institute of Statistics trains statisticians in the public sector on statistical methods, procedures, and techniques, and also encourages research. Since 1976, the National Institute of Statistics has become responsible for the national statistical plan, and it has induced the regional statistical offices to select and train personnel to execute better the regional statistical plans.

The Swedish National Central Bureau of Statistics (SCB), academic institutions and other organizations in Sweden have worked together on initiatives to bridge the gap between government and academic statisticians. The SCB employs academic statisticians from the universities in relatively high ranking posts, and invites university statisticians to conduct conferences regularly. University professors who are more engaged in teaching than in research may be given leaves of absence for up to 6 months to take jobs in related subjects. Finally, another method used to bridge the gap involves the appointment of adjunct professors, who supervise research work 1 day a week and carry out their normal non-university work 4 days a week.

The Syrian Arab Republic reported that its central Bureau of Statistics has tried since its creation to reduce the gap between theory and practice among staff members. The Central Bureau of Statistics sponsors inter-training for different categories of professionals working in statistical organizations as well as local training for those working outside the Bureau. These activities are undertaken, first, to provide a theoretical background for those officials working on practical problems such as data collection and questionnaire design, and second, to give a clear idea about practical statistical problems to professionals who have theoretical backgrounds and no experience in practice. At the same time, the Central Bureau of Statistics is trying, with the collaboration of the academicians, to introduce a system of workshops and seminars in the universities, aimed at giving a clear idea about statistical activities and statistical methods used in practice.

Finally, in the area of education and training, Uganda reported that some cooperation between theoreticians and practitioners is evidenced by the fact that the Institute of Statistics and Applied Economics uses the Central Statistical Office as a training laboratory for the degree program designed for professional statisticians. Members of the Institute serve on all Technical Advisory Committees for the government statistical surveys, while some members of the Central Statistical Office are invited to serve as guest lecturers at the Institute, and vice versa.

INSTITUTIONAL ARRANGEMENTS IN GOVERNMENT STATISTICAL OFFICES, UNIVERSITIES, AND BUSINESS

Most numerous among the efforts reported by the various countries to bridge the gap between theoreticians and applied statisticians were those which could be categorized as institutional arrangements. In Argentina, the Central Bank operates a system of research residencies which are offered on a regular basis to university professors and research scholars to work on specific programs for periods of 1 to 6 months. A parallel program of research fellowships has recently been implemented, under which fellowships are offered to research scholars to work on problems of interest to the Bank. The Institute of Statistics, University of Tucuman, has helped the state government to increase its technical capability by selecting a group of highly qualified students from the graduates of the university and assigning them to the graduate program in applied statistics, where they work in state

government directly under the supervision of a university professor for a period of time.

In Israel, a number of steps have been taken in an attempt to reduce the gap between various types of statisticians. The official statistical offices have developed methods departments and statistical analysis and research units to work on advanced statistical methods. This has created an important link between official statisticians and academic workers. In addition, university statistical departments have attempted, with limited success, to establish advisory statistical units to provide statistical advice to university researchers in other departments. Finally, an exchange of personnel between the university and the government statistical service has been established. Under this program, government statisticians, especially in the methods fields, move to academic positions in universities, and applied statisticians are invited to teach on a part-time basis in the statistical departments or other departments (e.g., economics, demography, etc.) of the universities. In some cases, these exchanges have served as a step for applied staff to move to full-time positions in the universities. At the same time, university statisticians are invited to work in the government statistical service on a part-time basis to develop projects or to give courses to personnel in the government service.

The report from Japan indicated that when practitioners face problems they normally contact academic statisticians. To enable better communication and cooperation between theoretical and applied statisticians, the Institute of Statistical Mathematics has established a special consultation section, and the staff of the Institute is encouraged to undertake studies in close cooperation with other organizations in various fields of interest. The report noted, however, that there is still a problem in formulating theoretically interesting studies from real life situations because of the need for knowledge of the relevant subject fields and experience in tackling such areas.

In the Philippines, the National Planning Office, which has under its umbrella all of the major statistics-producing agencies, has established a Statistical Advisory Board with its own interagency committees for different subject fields. The Board is trying to develop the decentralized statistical activities into a well-integrated system with the primary objective of rationalizing and integrating the production of statistics in all areas. With the view of bringing together academic and government statisticians, practitioners and other users of statistics, the Philippines National Census and Statistics Office held the first National Convention on Statistics in 1978. Papers were invited from the university, government and business sectors and the convention served as a forum for the discussion of problems in statistical analysis and operations.

In an attempt to bridge the gap from the university side, the curriculum in the Bachelor of Science (Statistics) at the Statistical Center, University of the Philippines, includes a five-unit practicum course in which students are assigned to various government statistical offices. In this way, students are exposed to official statistics and can participate in the statistical activities of these offices. Every student in the course works under a faculty advisor to whom he or she can bring statistical problems arising from analysis of data from the offices to which they are assigned.

Similarly, efforts are being made in Poland by the Central Statistical Office to promote better cooperation and collaboration between theoreticians and practitioners. Two scientific units in the Central Statistical Office—the Statistics Economics Research Centre and the Research and Development Centre of the State Statistical Information System—are helping in this effort to integrate statistics.

ACTIVITIES OF NATIONAL AND INTERNATIONAL STATISTICAL SOCIETIES

The only two country reports which specifically discussed activities by the national statistical society to bridge the gap between statisticians were provided by the United Kingdom and France. The Royal Statistical Society, and its sections and local groups, organize meetings throughout the year, with strong efforts to cover all aspects of statistical activity. Joint conferences are arranged between different sections of the Society, e.g., the Research Section, concerned with methodological aspects, and the Industrial Applications Section. An attempt is made to ensure that the Society's Council is representative of all the major branches of the profession. In France, the Institute of Statistics of the University of Paris has developed a number of subject-matter specialized units where theoretical and applied statisticians work and teach together. These are the Centre d'Enseignement et la Statistique Appliquee a la Medecine et a la Biologie

(CESAM), the Centre d'Enseigement et de Recherche de Statistique Appliquee (CERESTA), the Bureau Universitaire de Recherche Operationelle (BURO), a Cycle de Statistique Appliquee and a Seminaire d'Econometrie. Many professional associations and societies in France promote research and disseminate findings in statistics.

In the international setting a major role is played by various international organizations. The final chapter of this report will address the role of the International Statistical Institute itself. However, as additional background it is important to note the role of international organizations in seeking to improve communications among the various sectors of statisticians.

Since the establishment of the UN Statistical Commission (1947), the UN and its agencies have done considerable work in the development of statistical systems, especially in the less developed countries. Efforts have been deployed in four directions:

1. Training
2. Meetings and Conferences
3. Technical assistance to Bureaus of Statistics of less developed countries and other government departments
4. Publications of manuals, handbooks, articles, reports, etc.

In carrying out the above exercises, the UN system has managed to do a substantial amount on the problem although there is no evidence of any conscious effort to bridge the gap between the academics and the official statisticians.

The most evident effort of the UN system is in the form of UN assisted Regional Statistical Training Centres in Africa, Asia, Latin America, the Middle East, and the Caribbean.

A number of centres which started this way, e.g., the Rabat Institute of French-speaking African countries, are now self-financing, but the majority are still, by and large, financed by the UN. The Institute of Statistics and Applied Economics at Makerere University, Kampala, and the Statistical Institute for Asia and the Pacific, Tokyo, are cases in point. What is more, the UN has encouraged, fostered, and nurtured the development of such institutes, even where such training facilities were organized and financed entirely from national coffers from inception. Cases in point are the U.S. Bureau of the Census (Washington, D.C.) training programs, the Institute of Social Studies (The Hague), the Institute of Development Studies (Brighton), and the ISI-sponsored International Statistical Education Centre (Calcutta). Except for the Institute of Statistics and Applied Economics in Rabat, Morocco, which trains both professionals and academicians, the regional centres were meant to train only professional (official) statisticians. In some countries, even within the same city, such centres co-exist with a university department of statistics turning out academics. One would have expected that in such a situation, excellent facilities existed for bridging the gap between official and academic statisticians, but this does not happen. However, the Regional Centres have assisted in turning out the much-needed large numbers of official statisticians for collecting and analyzing data for formulation of national development plans.

The Centres mentioned above concentrate on long-term courses, mainly leading to degrees, diplomas and certificates. In some cases, the UN sponsors subject-specific, short-term courses and seminars with durations varying between 2 weeks and 3 months. These short-term courses introduce the participants to new methodologies and statistical techniques arising either out of the academic world or, as is more often the case, out of kindred disciplines.

Various UN agencies organize periodic meetings and conferences on a host of statistical issues with varying objectives. One may be to agree on definitions and classifications, another on drawing up a program of work and yet another on purely administrative matters. The ECA, Addis Ababa, for instance, organizes a biennial session of the Conference of African Statisticians in which all the 48 African states (English and French) participate. The meeting is dominated by official statisticians and except for the agenda item on training very little else on the week-long agenda would interest a nongovernment statistician. This is one conference that might serve to bridge the main gap. The UN and agencies should be called upon to sponsor relatively more technical conferences and meetings.

The UN and its agencies' statistical staff are to be found in virtually every less developed country either as advisers to the Bureau of Statistics or as advisers to another government department, or as trainers, or both. In this way, the UN has assisted directly in establishing and strengthening systems

for data collection in various countries especially where they did not exist before. The United Nations and its agencies also give considerable statistical assistance through correspondence with various member states—usually the National Bureau of Statistics.

The UN and its agencies have published a large number of manuals and articles for guidance mainly in collection of official statistics. These can and have been used also for training. The same system publishes reports, yearbooks, and other data periodicals. Again, these can and have been used as source material by training centres. What seems to be missing, especially where the yearbook is based on submissions by countries, is the methodology used in collection. It would generate academic interest in, for example, the IMF's International Financial Statistics or the World Bank's Atlas or UNSO's Yearbooks if some section of the report were devoted to methodology, as academics would then be attracted to verify whether the methodology used was correct in the prevailing circumstances and to make new contributions. The IMF is perhaps the one exception in its *Staff Papers*, in which the IMF statistical staff can publish their own papers of rather more academic nature.

Chapter IV. The Gaps and What Should Be Done To Reduce Them

The factfinding efforts of the Committee have identified a variety of ways in which gaps arise between various categories of the profession. While it is clearly recognized that many of these gaps are inevitable because of the limited ability of any individual to be familiar with more than a small part of the field, the Committee determined that it would be beneficial if efforts were made in all areas where gaps are identified to attempt to reduce the fragmentation which exists. In this chapter, the character of the gaps will be discussed briefly along with a variety of suggestions for future activities to encourage better communication throughout the profession. The five main categories which will be discussed are:

1. Education and training in theory and application of statistics;
2. Institutional arrangements in government statistical offices, universities, and business;
3. Activities of national and international statistical societies;
4. Career structure for applied and academic statisticians; and
5. Readability and unreadability of statistical literature.

EDUCATION AND TRAINING IN THEORY AND APPLICATION OF STATISTICS

The education process which develops statisticians is itself very diverse. In some universities the principal source of training in statistics is within departments of mathematics. In other cases, a department of statistics exists which has a primary focus on statistical theory, associated with the preparation of students with basic understanding needed in subject-matter areas. Probably the largest source of education in statistics, however, occurs within subject-matter departments where education in statistics is presented as a tool for further exploration of problems in the subject areas. In economics departments, for example, the teaching of statistics may focus on time series analysis and regression techniques as the basic background for econometric model building. In demographic teaching the initial focus might be on sampling theory and methods. In both of these cases, ISI members have reported that the subject-matter departments which placed their main emphasis on applications were subjected to such views as, "the theory and practice of sample surveys was a subject in the lower order of the statistical science," suggesting a subtle gap among teachers of statistics.

Clearly, statistical education and training in any society should, to a large extent, be geared to the needs of that society. While there is undoubtedly a need to encourage some of those who are mathematically gifted to explore theoretical problems which, in time, may have applications, our impression is that this aspect has been overemphasized in some countries. Much of the current research work and training for research in statistics, as evidenced by the subject-matter of recent Ph.D. theses and articles in learned statistical journals, is not useful now and is unlikely to be useful in the future for the purpose of obtaining factual information about scientific, social or administrative subject-matter areas of value to society.

A consequence of this excessive emphasis on theory is that many students graduating from statistics departments are not properly educated for the type of work they subsequently pursue.

The overly simplistic assumptions on which their theoretical studies were based often do not apply at all in their area of work and they have received little guidance from their teachers about how to proceed when this is the case.

Statistical departments have long debated the correct content for courses which are designed to offer the foundations of statistics. Texts are continuously developed to improve on the method of presentation of important concepts and for including a wider spectrum of applications. Texts have been developed to emphasize topics such as statistics in public policy, statistical analysis for business decisionmaking, the use of statistics in biomedical applications, etc. Nevertheless, it still appears that many of the gaps within the statistical profession result from the structure of the educational program with its continuing pressure toward greater specialization.

During its review of this problem, the Committee identified a number of useful ideas which should be considered in improving the education and training of statisticians. A number of ISI members urged the improvement of university education in statistics by bringing about a better balance between theory and practice. Specifically, it has been suggested that illustrations and exercises from real life situations should be given more prominence in the classroom setting. It was further urged that business organizations and government statistical offices which are faced with vexing problems of applied analysis assist in the development of case materials which can be introduced into the curriculum. For example, many government offices are faced with large-scale data base management problems in developing appropriate materials for statistical analysis. With the growing use of computers on the university campus, training in the relationship between data base management and subsequent statistical analysis would be helpful not only to the student in understanding the dimensions of the problem, but to the new worker when he is faced with such realities shortly after completing his education.

Some observers have urged that statistical education should include, on a compulsory basis, courses on applied fields in research which are directed to practical problems. Obviously, the suitability of this idea will vary but it is recognized that the general education of statisticians would be improved with more focus on applied situations.

One useful technique for improving the relationship between theoretical training and applications would be to establish more joint programs in which statisticians from universities could gain experience in business or government statistical offices. Their experience could also be designed to yield case studies for incorporation into the course work but, most importantly, the experience of the theoretician in the context of pressing applied work situations could be helpful in extending his perspective. Moreover, the theoretician might be able to identify improved techniques of analysis of deficiencies in assumptions which are being used in the applied situations.

In providing basic instruction in statistics which will bridge the gap between academic training and applied statistical work, special-purpose teaching materials will doubtless be developed. Such materials will probably appear in developed countries, as one observer noted, and the gap will not be bridged in developing countries because the materials are either not available or not available in the native language. Moreover, there is some reason to believe that developed country statistical offices are more valuable learning environments for students than is the case in developing countries.

INSTITUTIONAL ARRANGEMENTS IN GOVERNMENT STATISTICAL OFFICES, UNIVERSITIES, AND BUSINESS

In the worldwide review of the gaps which are evident in various subparts of the statistical profession, the Committee became convinced that existing institutional arrangements often are at the source of some of the presently observed difficulties. For example, within university departments the teachers who work in applied research, perhaps by collaborating with subject-matter specialists, often do not obtain the same opportunities for publishing results in refereed journals. Consequently, the university teacher/researcher who works on applied problems may be restricted in his promotion prospects within the university because of an inability to achieve required evidence of published results.

Within government statistical offices, there is often a tendency to undertake research and to issue publications on an anonymous basis where the principal researchers are not identified. This reduces the government statistician's visibility within the professional world and discourages the type of discourse which flows among universities as

persons of similar interest begin to identify common problems and correspond on an informal basis. A parallel occurs in some business settings where the pressure for rapid results on targeted problems leaves the statistician with little time to prepare his or her results in suitable form for publication and discourse with others in the profession. In some cases, concern over proprietary interests further inhibits such a dialogue.

As a result of these factors and other institutional characteristics, applied workers become more and more isolated. Inevitably, therefore, gaps between persons working in even similar applied areas tend to increase.

A number of suggestions have been made for reducing these artificial barriers. First, the exchange of personnel principle, which was identified under education and training, could be equally helpful in breaking down the lack of communication between theoreticians and government and business statisticians working in applied fields. Likewise, the opportunity for business or government statisticians to work in a university setting, perhaps on a research program related to some practical problems which cannot be undertaken in the normal pressure of events of business or government, should also lead to greater interaction between academic theoreticians and applied statisticians.

Within the university environment, it has been proposed that peer review groups and promotion and tenure committees should give increased attention to applied contributions of university statisticians. This is perhaps the single most influential change that could be proposed in institutional arrangements within universities for contributing to the resolution of the gap between theory and practice. It would be necessary for promotion committees to give advance announcement of this revision in their criteria, and it is likely that no major changes in behavior would occur until a few test cases had been acted upon. Nevertheless, over the longer term a recognition of applied contributions within the university structure could have a pervasive effect on reducing the gap between theory and applications.

In the context of business, there are several institutional adjustments which seem desirable. First, the encouragement of staff to take short-term research assignments in universities as well as the hiring of theoretical researchers as consultants or as part of the business team should be constructive.

Much of the business concern about proprietary information is probably misplaced. For example, it should be possible to disguise data bases so that individual product information would not be revealed, yet the techniques of analysis could be presented for wider professional discussion. For those businesses that encourage publication of their internal research results, there are many benefits which are likely to accrue. Not the least of these is the constructive effect of outside criticism and suggestions which may eventually improve the procedures used in their particular business.

ACTIVITIES OF NATIONAL AND INTERNATIONAL STATISTICAL SOCIETIES

The subject of improved professional communication and integration of the profession is a legitimate and natural concern of both national and international statistical societies. This is underscored by the attention which has been given to this subject by the leading professional societies either directly in the development of their annual and periodic meeting programs, or indirectly through the exhortations of elected officers of these organizations, as noted in the introduction to this report.

Professional societies are faced with a difficult dilemma. In order to attract active participation, it is essential to organize meetings where professionals with common interests can join together in discussion, debate, and exploration of topics of mutual interest. At the same time, the societies have a responsibility to acquaint professionals with related activities outside of their direct areas of interest. Unfortunately, if the statistical society arranges for meetings which appear peripheral to the needs of many members, attendance at the meetings will be reduced and, in some cases, participation in the society may be affected.

A natural response of many professional statistical societies has been to develop subsections or subgroups which focus on particular areas of concern. While this draws together persons with common interests, it tends to further compartmentalize the profession and may, in itself, be a factor in creating the gaps which are the concern of the ISI Committee on the Integration of Statistics.

In its review of the problem, the Committee decided that the national and international statistical

societies held an important key to enhancing the integration of the profession. A number of suggestions have been received. First, the professional associations should strive to promote communication among various categories of statisticians through dissemination of research results, organizing of cross-cutting seminars and topics, development of conferences and workshops to bring together analogous problems which may draw the subfields together, etc. The professional societies should also assess their publications programs as discussed in the final item in this section.

Professional societies also represent an important potential catalyst for the exchange of personnel discussed earlier. Professional societies could help establish and promote fellowship programs, identify candidates for visiting assignments and develop other programs to encourage exchanges.

The professional society is a logical place to develop committees which are interdisciplinary in character and which are designed to encourage the dissemination of findings and new techniques to other parts of the profession.

Finally, professional associations should make a continuing effort to stress the standards which should be applied in all statistical work and to encourage all individual members to take an interest in a wide range of activities within the profession.

CAREER STRUCTURE FOR APPLIED AND ACADEMIC STATISTICIANS

It is evident that there is some tension between various branches of the profession. Some workers on practical aspects of statistics tend to view with disdain the "head in the clouds attitude" of the theoretical worker. At the same time, some in the academic community feel that the practical work undertaken in the name of statistics by business and government is simplistic, improperly developed, and/or mundane. The attitude of each group that its activities are in some way superior to those of the other is not conducive to a cohesive attitude within the profession.

There is a general need to develop greater respect among the diverse elements of the profession for the achievements in each of the subsectors. There is both good and bad professional activity in all subsectors, but it is improper to consider that a whole subsector is inferior or, for that matter, superior to other subsectors. In the long run, the profession as a whole suffers when any one subsector is responsible for inferior theory, analysis or presentation and, likewise, the whole profession benefits when outstanding achievements are contributed by any of its components. The essence of improved integration is, as stated earlier, improved communication, but that can only occur when the various groups want to communicate. One contributing factor to the competition among the subsectors is the differing career structure for applied and academic statisticians. This topic was considered in the institutional arrangements section earlier, but it deserves further emphasis. Ideally, there should be parallel career opportunities in universities, business, and government for work in applications or in theoretical development. In universities, for example, it would be desirable to provide equal status positions to those who work in applications and to those who work in the development of theory. In industry it would be helpful to ensure that individual development opportunities for advancement are equal for individuals who make contributions on either the theoretical or the applied level. Likewise, in government, efforts should be made to ensure that workers in a methodological research group have opportunities for recognition and advancement equal to those for individuals who assume administrative responsibility for practical data production.

The benefits of these parallel career structures are obvious. If talented individuals feel they can pursue their natural inclinations, either theoretical or applied, the flow of talent can be expected to go into all dimensions of statistical work and, as a consequence, the probability of exchanges among workers will be enhanced.

READABILITY AND UNREADABILITY OF STATISTICAL LITERATURE

Throughout this report, the Committee on the Integration of Statistics has identified lack of communication as a major cause of the various gaps which exist among parts of the statistical profession.

One of the difficulties which results from increasing specialization is the tendency for each area to develop a specialized set of terminology and/or procedures. Usually when a new idea is advanced, the author sets forth a series of assumptions and then describes the logical results which flow from them. Later, another researcher or

theoretician with the same interest may challenge some of the initial propositions, restate the logical sequence and derive slightly different results. At this point, others enter into the discussion and the references to earlier work make it difficult for the newcomer to quickly identify the thrust of the debate without going back to earlier references and re-examining the specialized terminology which has developed. As the literature blossoms it becomes more and more isolated and, consequently, of greater difficulty for the person who wishes to examine the procedures to see if they have some applicability to his or her particular interests. The growth in the literature also creates such a volume that, as one correspondent stated, "life is too short to keep up with the general literature".

It is unlikely that the total style and specialization of statistical articles can be revamped. For example, while some have suggested that a standard form of notation be employed, there is no satisfactory mechanism for standardizing terminology or notation and the debates that would ensue over proposals to standardize would simply complicate the process further. Nevertheless, there are several things which the journals can do to aid in the communication process.

First, the Committee proposes that journals devote more effort to encouraging review articles which have the specific task of examining the literature in a particular subset of the profession for the purpose of introducing the non-expert to the essential ideas and basic concepts of the subbranch. Second, it would be helpful if journals could give more prominence to articles on applied statistics so that the balance between theoretical articles and applications is shifted from the present emphasis on the theoretical. If government and business adopt some of measures to encourage publication which were identified earlier, it is hoped that the journals would, in turn, accept the applied articles. The benefits from this could be substantial. First, the applied articles should be of interest to theoreticians in the sense that they will help identify real world problems which need attention. Second, the applied articles will, over time, begin to attract readership among practitioners who may not even open the technical journals because they know that there is little that will be of immediate use without great effort. Application articles will make it easier for them to get benefit from more closely following the journal. Finally, as readership expands the real level of communication within subsectors of the profession will be enhanced.

In a similar light, the journals could encourage authors of theoretical papers to indicate possible practical applications of their results, and to give concrete examples wherever possible. All too frequently a cursory statement is made about the potential practical application, but no real effort is made by the author to provide the concrete illustration which would result from actually having attempted to apply the results obtained in the paper. Obviously, in order for this procedure to be effective the refereeing process must be modified to give new recognition to such practical illustrations.

A number of individuals have suggested that statistical journals should have a section on practical problems faced by practitioners. These articles could include information on specific problems which remain unsolved and attempts which have been used to date or, alternatively, describe how a particular practical problem was handled with the hope that this description might lead others to use the same techniques.

Chapter V. Recommendations to the International Statistical Institute

A central purpose of the Committee on the Integration of Statistics was to develop recommendations to the International Statistical Institute. The Institute is especially well suited to deal with the problems which have been identified by the Committee because the ISI membership includes leading statisticians of all of the different categories discussed in this report from countries throughout the world. The Committee is well aware of the resource limitations of the Institute; therefore, these recommendations have been tailored to represent a realistic program which is within the Institute's capabilities.

1. *The International Statistical Institute should regard the integration of statistics as one of its major objectives.*

The recognition of the importance of the integration of statistics should permeate all ISI activities such as the organization of meetings, encouragement of publications, and development of special funded projects. The Committee believes that this recommendation is fully consistent with the fundamental objective of the Institute which is

to, "develop and improve statistical methods, and their application throughout the world, all of this in the widest sense of the word." Specifically, for example, the by-laws state that ISI should achieve this objective by, "encouraging the international association of statisticians, the exchange among them of professional knowledge, and the growth among them of a collective interest in the advancement of such a knowledge." Obviously, stimulating an awareness throughout the profession of the need to bring together the understanding gained in various specialties within the profession would make a significant contribution to this overall objective.

Initially, the ISI could undertake several simple but important steps to follow up the work of the Committee. In addition to publishing the Report in the *Review*, the Institute should send copies of the Report of the Committee on the Integration of Statistics and the report of the American Statistical Association entitled, "Conference on the Transfer of Methodology Between Academic and Government Statisticians" to national statistical associations. The Institute should formally request that the associations consider these reports and inform ISI about any steps taken to implement their suggestions and recommendations at the national level. For example, national societies could consider holding meetings to discuss the report and to identify areas of potential collaboration for overcoming gaps which have been identified by the Committee on the Integration of Statistics.

Over the years, the International Statistical Institute has worked with a number of agencies to undertake special projects, such as the improvement of international statistical training centers, which is funded by UNESCO, and management of the World Fertility Survey, which is funded by the United Nations and the U.S. Agency for International Development. The Committee suggests that the Institute develop and seek support for research projects where there is an opportunity to demonstrate ways and means for bridging gaps within the profession.

A proposal has recently been made that the Institute should organize a series of recurrent symposia on various special topics in statistics. The Committee suggests that if and when this proposal is implemented, special attention should be given by the organizers to the integration of statistics by ensuring that statisticians of different categories, such as theoreticians and practitioners, or statisticians from different fields with some common methodological interest, are present at the symposia.

2. *The* Review *of the International Statistical Institute should give a high priority to papers which will make a contribution to bridging various gaps within the profession.*

As an international journal, the *Review* has great potential for making a direct contribution to solving some of the problems identified in this report. The editor of the *Review* should seek out authors for major invited papers which are intended to provide a broad summarization of various fields within statistics. These papers should be designed to highlight recent methodological innovations in simple terms with the purpose of acquainting nonspecialist readers with developments in the area concerned. The Editorial Board should seek to give such papers high professional status by selecting eminent persons to be authors and by giving special status to the papers themselves.

Finally, the *Review* should encourage authors to bring together theory and applications wherever possible. The *Review* has the potential for serving as a leading organ for the drawing together of theory and practical applications.

3. *The Committee on Training and Education should review curricula in statistics with a view toward promoting a core educational program which will improve the student's ability to reach out into various specialized branches of statistics.*

For several decades, the International Statistical Institute has devoted considerable attention to the education and training of statisticians. It has offered substantial guidance to the developers of curricula. More recently, it has also assisted regional training institutions, especially those that provide assistance to national statistical offices.

In these areas there is an opportunity for updating the core curriculum in order to give the student an introduction to the various branches of statistics and to awaken the student's awareness of the benefits of drawing parallels among the various approaches to solving problems which are statistical in character. With the fields within statistics undergoing rapid change, it is clear that this review of core materials is destined to be an ongoing process.

The Committee on Education and Training should consider the possibility of obtaining financial support to enable it to commission the writing of up-to-date books and manuals suitable for the teaching of statistics in developing countries throughout the world, possibly after translation.

4. *The Program Committee for the biennial session of the International Statistical Institute should ensure that several meetings will be organized for each Session with the aim at least in part of improving integration within the profession.*

With the development of specialized sections within the Institute there has been, in recent years, considerable pressure on the program committee to provide more opportunities for specialist meetings. The program is now very crowded with competing meetings with the result that attendees typically participate in those meetings most closely identified with their own specialities. This increases the balkanization of the profession.

In order for the Program Committee to overcome this recent trend, it will be necessary to establish time periods for essentially plenary meetings which are designed to appeal to the whole profession—the members from the various sections. The Committee suggests that at least one meeting at the Mexico and Spain meetings be organized in an exclusive time period, and that the purpose of the session be identified with integration of the profession. One possibility would be to ask each of the three major sections to produce a paper for the meeting which they regard as suitable for nonspecialists. Another would be to invite a leading statistician to give a lecture for a general audience on one of his special interests. Perhaps both should be tried.

The organizers of meetings on specialized topics should be encouraged to arrange for a juxtaposition of developments in theory along with illustrations of practical applications. Ideally, some papers may include both dimensions; however, in situations where that is not possible, related papers should be included within the same meeting wherever possible.

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A Federal Policy for Improving Data Access and User Services

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Editor's Note: *This paper is a first effort at enunciating major elements in a Federal policy on data access and user services.*[1] *The paper also represents an updated version of Chapter 33, "User Access to Federal Public Data Files," in* A Framework for Planning U.S. Federal Statistics for the 1980's. *It is intended for the broad audience, both inside and outside of the Federal Government, which is concerned with improving Federal performance in the area of data access and use. The paper will serve as the basis for a formal statement of Federal policy in this area. Comments and suggestions concerning the paper's contents are actively solicited from both producers and users of Federal statistics.*

Introduction

The Federal statistical system produces a vast array of statistical information, a product which appears to grow each year. It is commonly observed, however, that these data are seriously underutilized both inside and outside of the Federal Government, and that this condition can be attributed primarily to the lack of adequate information about and access to the existing and available Federal statistical data bases. Notable symptoms of the problem include:

- Data users express confusion and exasperation in trying to locate existing Federal statistics.
- Agency personnel who work with data users report that for every actual data user they encounter they find many others who need Federal statistics but are unaware that they are available from the Federal Government.
- Many of the more sophisticated users of Federal statistical data complain of lengthy delays and time-consuming obstacles in obtaining Federal data in usable form.
- Some original data collection efforts have been launched to collect data which were already available or could have been readily available from an existing data base.

These conditions have led to a growing collective belief within the Federal statistical system that the problems of ensuring access to federally collected statistical data and providing adequate services to those who use the data are among the most serious facing Federal statistics in the 1980's.

General Policy Considerations

An activist policy.—Historically, societal demand has always been a major cause for the production of statistical data by the Federal Government. Today, however, the character of the demand for statistics has changed. The "information society" prizes rapid access to statistical information at a value higher than ever before in U.S. history, seeks this access in ever more instantaneous form, and inquires for ever more detail in statistics. Just as American society is taxing its Federal statistical system for production of more and more statistics, it is also clamoring for greater access to those statistics for use in all sectors of public and private life.

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[1]This paper omits consideration of the Decision Information Display System (formerly the Domestic Information Display System). DIDS is a major program with significant impact on data access issues but it is also a program which is still in developmental stages. When DIDS becomes well institutionalized it will have an important place in Federal policy on data access and user services. (Cf. Joseph W. Duncan, "Decision Information Display System—A Tool for Improving Access to the Statistical System," OFSPS, November 1980.) For the time being, DIDS is left out of consideration in this paper. The paper also does not deal with the Federal Information Locator System, another program which is still in formative stages.

For earlier treatment of topics covered in this paper, cf. Warren G. Glimpse, "Improving Information on the Availability of Federal Statistical Resources," *Statistical Reporter*, October 1979, pp. 1–4.

The Federal statistical system has become alerted to this changing demand, but the response to the alert has tended to be of a piecemeal nature, a condition which is not surprising in view of the decentralized nature of the U.S. system. The demand has become so pervasive and so intense, however, that coordination of response is imperative. Users need more centralized facilities for determining what data are available, their attributes, and how to obtain them. The welter of agencies producing statistics and making them available in a bewildering range of formats and according to widely varying rules and procedures constitutes a major frustration for the public.

Given these conditions, it is incumbent upon the Federal statistical system to develop a coordinated, coherent and unified approach to the general problem of data access. The term itself, "data access," spells confusion. There is no widely accepted definition of data access. The Federal agencies themselves utilize a very broad conceptualization, encompassing data access in all its forms: publication policies and practices, development of general informational and reference materials, handling of general inquiries from the public, servicing technically sophisticated data users, providing machine-readable data files, developing user training programs, fielding user surveys, and so forth. For the purposes of this paper, greater precision of definition will not be attempted; the broad meaning of data access will be used.

Many aspects of data access problems are not new. Statistical agencies have always answered public inquiries, developed reference materials, and published statistical data. What is new are recent social and technological changes affecting data access.

Technological changes in recent years relate to the electronic computer revolution. Today the user community for Federal statistics still includes those individuals and groups in the public who seek general statistical information provided by the Federal Government. However, it now also includes a sophisticated elite who are familiar with the Federal statistical system and who are energetically involved in using Federal statistical data on a continuing, often day-to-day basis with their own computer facilities. As computerization pervades society, the demand grows ever greater for access to statistical data in forms suitable for computer processing, and this development especially challenges the responsiveness of the Federal statistical system.

At the same time, recent social changes have led to a considerably augmented data user community. Legislation of recent years has frequently mandated the use of Federal statistics, for example, infunding formulas, as requirements for Federal grant applications, or in affirmative action programs. Often these statistics are needed at a level of geographical detail which is not found in printed publications. Similarly, scarcity of societal resources has led to greater emphasis on planning for use of resources. Planning is a growth industry in America which depends heavily on statistics. These developments have created many kinds of data users that did not exist before and created them in substantial and steadily increasing numbers. These users are demanding more and more statistics from the Federal Government.

The widespread availability of computers today means that many users can afford to process statistical data themselves and in fact would rather do so. This has led to a growing demand for access to Federal statistical information in the form of machine-readable data files (MRDF's). There are great advantages to the user in having access to MRDF's as opposed to statistical publications. In the MRDF the user has use of the basic data source (suitably safeguarded for privacy and confidentiality). The user can enjoy greater possibilities for data manipulation and analysis, applying different forms of statistical modeling and software that were not contemplated by the originating agency. Particular user needs which are not met by generalized tables in statistical publications can be more adequately satisfied by MRDF's. Data can be grouped in different ways for descriptive purposes or input to software for graphical displays. Sometimes the user can combine several data sources with MRDF's and achieve levels of description and analysis that were simply not available or perhaps even imagined with the individual original data sources.

There are advantages also to the statistical agency in releasing MRDF's. Agencies can prepare data for dissemination on an MRDF much more cheaply and quickly than they can prepare the same data for conventional publication. Where agencies formerly prepared special tabulations for users upon demand and reimbursement—a costly and time consuming process—the agencies can

now often, in the case of microdata, provide users the wherewithal to produce their own special tabulations, relieving the agencies of the obligation to satisfy users on a custom-tailored basis.

The release of MRDF's also has its drawbacks. If data are made available in machine-readable form, the user must have the technical expertise and financial and computer resources necessary to perform retrievals and analysis. Some users without computer facilities have argued that they are deprived of equal access to public data relative to sophisticated users with computers. Standards and practices for documentation of MRDF's are still in an embryonic state so that users are often frustrated for lack of technical information. The fact is that American society is presently better equipped to handle the dissemination and maintenance of data in print than in machine-readable form. However, it is necessary to meet the demands of emerging technology while at the same time assuring that the more traditional methods of data dissemination are also improved.

A first task for Federal statistical policy is to elaborate the basic posture of the Federal statistical system toward the increased demand for improved data access and user services. The viewpoint espoused in this paper is that Federal agencies should adopt a positive and active stance toward making statistical data more available to the public in machine-readable as well as other forms and toward providing greater services to users.

An activist policy—the idea of promoting, marketing or "pushing" the product—is one that is somewhat alien and repugnant to many Federal statistical agencies. The prevailing climate of opinion appears to be that the agency has discharged its obligation to the public when it completes production of statistical publications in a competent and timely fashion and then announces to the public that the publications are available for purchase. This viewpoint is sometimes buttressed by a legalistic argument which points to the legislation creating the statistical programs and notes that this legislation calls only for printed publication and nothing more. The concept of an active marketing campaign is seldom embraced by Federal statistical agencies. The prevailing stance toward the user community can be characterized as: Here are our statistics; if you wish to use them, come to us and we will assist you if it is not too much trouble for us. The attitude espoused in this paper is: Here are your statistics: please let us help you to use them.

The prevailing perspective ignores the fact that not all users are able to effectively articulate their needs. Others have little conception at all of their statistical needs. A great many potential users are unaware of the data holdings of Federal agencies. the Federal statistical system is fairly well equipped to service those who know and can articulate their needs but until the potential user can cross this threshold of knowledge and communication he or she is often ill served.

Federal agencies bear responsibility for lowering this threshold, for maximizing awareness, use and application of the statistics in which the public has invested. Basic activities of data dissemination and information support have begun receiving attention among statistical agencies but not yet to a degree that merits any comparison with the aggressive promotional activities so important to the success of a retailer in the private sector. While the private sector retailer is not necessarily to be construed as a model for public agencies, suitable adaptation of active marketing promotion techniques should be considered a goal for Federal statistical agencies. Statistical agencies should engage in promotional and other marketing activities, consistent with their status as public agencies, to increase the use of their output. An activist data access policy is both a means of enhancing the general public good as well as an act of self interest on the part of Federal agencies. It is an act of self-interest because public cooperation with Federal data collection activities will be increasingly associated with public perception that statistical activities do indeed provide benefit to the general public and even to the individual citizen.

Moreover, systematic attention to the question of data access and user services on the part of Federal agencies can be seen as an integral part of Public Law 96-511, the Paperwork Reduction Act of 1980. The law provides, for example, that the usefulness of information collected by the Federal Government shall be maximized, and that agencies shall systematically inventory their major information systems and review their information management activities, including collection, use and dissemination of information. The report of the President's Reorganization Project for the Federal Statistical System also emphasizes the importance of increasing data access and user services.

The limits to activism.—While this paper argues for an activist stance toward data access, it must also be recognized that there are limits to this posi-

tion. Providing users with data is an expensive undertaking. Statistical agencies cannot simply prepare a computer tape and announce its availability. Documentation informing the user as to the contents of the tape and how to utilize it must be developed. Personnel must be deployed to respond to user queries. As some agencies have already found, an inevitable next step is to provide training for users. Feedback from and interaction with the user community is necessary, and so surveys of users needs and problems follow. Organizational units must be created within the agencies to respond to users. These steps require substantial funds and trained personnel.

For example, a major question in determining whether files can and should be released is the cost/benefit analysis of providing and maintaining such information. Agencies cannot justify the cost of packaging, promoting and disseminating when the data are not of general utility, when in fact there are to be only a handful of users, even though those users are highly articulate and influential. Often the construction and documentation of files is designed for agencies' internal operations. As a result, files are often not directly useful to external users because they involve specialized procedures for access, specific data base management conventions, agency unique file structures or confidential data. On the other hand, the fact that files are currently designed only for internal use should not be the sole decisive factor in determining not to release data.

It is not the intent to argue here the simplistic case that all data files which can be released must be released. Clearly a file for which there is no user demand holds no compelling logic for release. Rather, the important point is that agencies should establish systematic procedures for scrutinizing their data holdings with user needs in view. This entails at a minimum the development of routinized interaction with agency user communities in order to estimate the real demand for particular files. The fact that an agency is not experiencing higher user demand for a set of data can be an indicator that users do not consider the data valuable; on the other hand, it could equally well indicate that users are unaware that the data set exists. Cost/benefit analysis of providing and maintaining a file should be an integral part of an agency's data access program, but so also should be a concerted effort to make both general and sophisticated publics aware of the agency's data holdings.

Privacy and confidentiality are also major considerations in determining whether data can be released for public use. Agencies must ensure that suitable disclosure-avoidance techniques have been employed in preparing data for release.

An additional limit to the data access initiatives of statistical agencies must be borne in mind. This is the distinction between public and private sector roles. Few objections are heard from the private sector when a Federal agency releases a data file. However, as agencies pursue more activist policies and begin to release software tools for processing federally collected data, problems arise. To some agencies, the release of software is only a logical next step: if the intent is to aid the user in accessing data, software designed to assist the user to process the data is eminently reasonable. To the private sector firm, on the other hand, the provision of software by Federal agencies may be an infringement on legitimate business interests.

The intent here is to focus attention rather than to provide a definitive answer. The key actions for Federal statistical agencies as regards public/private sector conflicts as well as other aspects of data access are to initiate regularized interaction with user communities so as to ascertain the size and shape of user needs and to utilize this interaction as the basis for restructuring statistical programs toward greater user orientation.

Policy developments.—Concern with problems of data access led the Statistical Policy Coordination Committee to approve during FY 1980 the principle of elevating the topic of improved access to Federal statistical data to the status of a crosscutting issue for the entire statistical system in the FY 1982 budget. The Federal Council on Statistical Plans and Programs also approved giving high priority to developing data access policy and improved mechanisms for meeting user needs.

The paper is an outgrowth of activities of the Office of Federal Statistical Policy and Standards (OFSPS) during FY 1980. Over the course of this year, OFSPS has been much more active in examining issues and programs in the area of data access and use. In cooperation with the National Technical Information Service (NTIS), OFSPS achieved a start at producing a systemwide *Directory of Federal Statistical Data Files*. A prototype version of the *Di-*

rectory was produced during FY 1980 so that agencies might review and critique the proposed format for the full *Directory*. OFSPS expects that the first published version of the *Directory* will be available during the early months of 1981.

In addition, OFSPS established an Interagency Committee on Data Access and Use in April 1980. Initially, 12 agencies were invited to nominate representatives to the Committee. The Committee met monthly beginning in April and will continue to be active. Among other things, the Committee approved moving ahead with the *Directory* and examined a number of issues which are treated in this paper. The purpose, organization, activities and membership of the Interagency Committee were reported in the October 1980 issue of *Statistical Reporter*. The issues presented in this paper have been the subject of Committee deliberations.

In May 1980 OFSPS carried out an informal survey of data access practices in the agencies represented on the Interagency Committee on Data Access and Use. The survey resulted in a paper, "Report on Data Access Activities in Selected Federal Agencies," which was presented to the Interagency Committee. References to specific agency practices in this paper are usually taken from the report. In addition, this paper is considerably indebted to a paper entitled "User Access to Federal Data" which was written by Paul Zeisset, Data User Services Division, Bureau of the Census, in connection with the work of the President's Reorganization Program for the Federal Statistical System.

Recommended good practice.—The Federal statistical system is diverse; some agencies in the system are exclusively statistical in mission while others are statistical units in a larger agency. In recognition of this fact, the distinction is made between statistical agencies and statistical programs in nonstatistical agencies. Also in recognition of the variegated organizational circumstances of Federal statistics, recommendations are couched as "recommended good practice," providing general standards against which agencies can measure their performance.

1. It is the policy of the Office of Federal Statistical Policy and Standards, acting as coordinator and lead agency for the Federal statistical system, that Federal statistical agencies and statistical programs in nonstatistical agencies should engage in active promotional activities to provide users with improved access to federally collected data and with such services as will enable them to utilize better the data.

2. Federal statistical agencies and agencies with major statistical programs are enjoined to examine the basic policies underlying their data access and user service programs in order to ensure that these policies include an active marketing outreach towards the user.

3. Federal statistical agencies and agencies with major statistical programs should develop procedures for routinely examining the costs and benefits of releasing their data holdings to the public.

4. Federal statistical agencies and agencies with major statistical programs should develop procedures for routine interaction with their user communities, for making users aware of agency data holdings and for measuring user demand for data.

5. Where agencies have taken the necessary steps to inform users and user demand has been seen to exist, Federal statistical agencies and statistical programs should make their data files and data bases available to the public, suitably protected for privacy and confidentiality, in the form of machine-readable data files (MRDF's) and provide the resources to maintain adequate user services for the files.

Organization and Budgeting for the Data Access Function

The OFSPS survey of agency practices in the data access area contained inquiries as to how the agencies organized data access activities. The intent was to ascertain the degree of formal visibility accorded to data access. For example, agencies were asked whether the data access function was organized into an identifiable bureaucratic unit or whether the function was spread diffusely among many units. In 5 of the 11 agencies surveyed, the response was that data access was handled diffusely; that is, a typical response would be that many individuals from several offices had data access responsibilities and no single office was specifically charged with the overall responsibility. Six of the 11 agencies reported having some personnel whose duties included spending more than 50 percent of their time on data access activities; in most cases only a handful of personnel were involved and these personnel were likely to be public affairs officers rather than subject-matter or computer specialists. In only two agencies was there an identifiable budget for data access. One of the agencies

was the Bureau of the Census which has a Data User Services Division and hence a divisional budget. The other was the Bureau of Justice Statistics whose data access budget is identifiable because the bulk of data access activities are "contracted out" under a cooperative agreement with the University of Michigan; a dollar figure is budgeted for the cooperative agreement.

The general impression gained from the agency interviews was that the data access function, no matter how loftily elevated in the eyes of the SPCC, has not yet gained sufficient bureaucratic identity within the Federal statistical system. Quite often one cannot find a person or an office within an agency with the specific responsibility for answering to the needs of data users; one cannot find resources budgeted and personnel deployed for the express purpose of providing user services. Bureaucracies being what they are, the suspicion arises that functions which are not assigned to specific units and personnel and which are not budgeted for are functions which do not get routinely performed.

A first step for Federal statistical agencies, therefore, is to examine their organizational structures and personnel deployment with a view to creating specific, identifiable organizational units charged with performing or coordinating the data access function and to provide budgetary resources for these units. Only when someone is given resources and the responsibility for improving data access is the job likely to be accomplished.

Recommended good practice.—1. Federal statistical agencies should designate a specific organizational unit, and specific personnel within that unit, whose major responsibility is the improvement of data access and user services for the agency. Financial resources should be budgeted for these units.

2. Federal statistical programs in nonstatistical agencies should, at a minimum, designate one or more personnel whose full-time responsibility is the improvement of data access and user services.

Informational and Reference Services

Newsletters and brochures.—For data to be used effectively good descriptive materials must be available such as brochures or flyers intended as a first brief introduction for a general public. Newsletters or periodicals are needed to allow users to keep themselves informed of important new developments in Federal statistics. Such vehicles include information on availability of new products, changes to existing products, forthcoming developments, answers to frequently asked questions, error notices and highlights of new statistical reports. The OFSPS survey of 11 agencies showed that about half published brochures which described their data holdings and 4 had newsletters for data users.

For example, the Economics and Statistics Service publishes the *Crop Reporting Board Catalog* which outlines all of the estimates from the Crop Reporting Board and the dates the estimates are available. The Energy Information Administration offers brochures on its activities and on FEDEX, a computerized data base created to provide quick reference to statistical publications. The Bureau of Labor Statistics publishes *Information Processing at BLS,* a report which contains a history of information processing at BLS, describes the agency's use of the computer for research, its approach to third-generation computers and the new directions represented by the LABSTAT data base system. The National Center for Health Statistics publishes *Facts at Your Fingertips* which is a guide to sources of statistical information on major health topics. The Census Bureau's *Data User News* is a monthly newsletter concentrating on new product releases, developments related to upcoming censuses and various user activities. *Factfinder for the Nation,* a series of brochures describing programs and products, is also published by the Census Bureau.

The *Statistical Reporter,* published by OFSPS, deals with the full range of Federal statistics including legislative and organizational developments within the Federal statistical system. About 5,000 copies of *Statistical Reporter* are printed each month, 1500 of which are distributed on a subscription basis outside the Federal Government. There are also several nongovernmental publications which keep users informed of latest developments.

A major service of the Federal statistical system would be a more systematic, coherent program for dissemination of information about data sources, contacts and responsibilities. At present, numerous areas attempt to provide such support with little coordination. These include one-time announcements in various publications generally designed to service other needs as well, separate flyers and agency brochures. Such approaches are often not

conducive to maintaining and disseminating such information in an organized manner. Clearly a principal task for an agency data access unit is to rationale the agency's information dissemination program.

A number of specific issues bear consideration with regard to newsletters.

Coverage. Specialized newsletters are needed to service specialized needs. Most users are likely to be interested in keeping informed on a narrower range of topics. Thus there is a continuing role for statistical newsletters corresponding to individual agency outputs or oriented towards developments in a particular field.

Timeliness. Some of the major existing user newsletters have publication lags of 1 to 3 months. This situation obviously makes them unsatisfactory for some purposes. More frequent publication or streamlined publication procedures are required.

User orientation. Many existing newsletters are relatively conservative in content, reporting on recent releases but not on major options for the future still being developed. The perspective of outside users would be helpful in developing the approach to particular topics or in determining the topics to be reported. This would dictate an increased interaction between users and the agency staff who are most aware of forthcoming developments.

Reference materials.—There are now many reference services provided by Federal statistical agencies. All such agencies publish catalogs or directories which list their publications. For many situations the basic problem for the user is to identify the data source in the first place and to locate specific items of information within the source. Aside from the personal knowledge that some experienced users are able to bring to bear, this process depends on data finding aids of three types:

1. Published catalogs, such as classified lists of bibliographic abstracts, usually indexed by selected key words, and frequently relied on to provide ordering information; also frequently limited in scope to a particular period of issuance.
2. Published indexes and table finding guides, which are generally more specifically oriented toward data finding than catalogs, frequently with references down to the individual tables level. Most indexes treat data items only with a single data base.
3. Computerized cataloging and query systems. The information recorded in computerized catalogs is frequently more detailed than in published catalogs, and it is possible to make more complex searches. The most sophisticated systems of this type are designed also to accomplish data retrieval when the appropriate statistics are located.

Appendix A contains a list of Federal statistical data file catalogs and directories.

More agencies are now producing publications which assist the user to locate his or her specific information need. These more specialized publications show a heightened sensitivity on the part of Federal statistical agencies towards their user public.

A trend is emerging toward the development of subject-matter directories which assist in locating statistical information irrespective of the department or agency which performed the original data collection. The Energy Information Administration (EIA), for example, not only has a publications directory and a user's guide to the directory, but also issues the *Energy Information Referral Directory* which provides information on accessing energy data across Federal agencies. EIA also provides information on FEDEX, the computerized data base created to provide quick reference to statistical tabulations of all EIA publications. The National Center for Health Statistics (NCHS) publishes *Facts at Your Fingertips* which covers sources both inside and outside the Federal Government. The National Center for Education Statistics (NCES) publishes the *Directory of Federal Agency Education Data Tapes* which identifies education-related data irrespective of the agency holding the data. These publications which provide references on a given topic across agency lines are highly laudable because they simplify the information search for users unfamiliar with the complex organization of the Federal statistical system.

There are several issues which agencies can profitably consider in developing adequate reference materials.

User orientation. Descriptive material should be oriented toward communicating the information most needed by the user. User orientation might suggest, for instance, the development of

simplified standard error tables and examples of their application in addition to the more conventional theoretical discussions of sampling variability. Concept definitions and other material should be written with an eye toward anticipating the questions or problems the user may have; for example, the relationship of one data base to another. Materials written with strong user orientation have an added benefit to the statistical agency because they diminish the number of user inquiries once the publications are issued.

Good writing. Preparation of good reference materials should be recognized as an important occupational specialty requiring good writing skills, thorough understanding of the nature and utility of the data base, and empathy with the problems faced by the prospective data user. Agencies need documentation specialists, persons who can write lucidly and who are familiar with the information needs of the prospective data users. The availability of documentation specialists may in fact encourage the release of certain data files which have not been prepared for external release simply because of lack of resources for preparing good documentation.

Inclusion of unreleased data. One of the most difficult categories of data about which to obtain information are those data bases which are not available for public use but from which summaries or extracts can be prepared for public use, or from which users may obtain special tabulations. Also in this category fall those data bases which can be made available to other Federal agencies on a restricted basis. Agencies are strongly encouraged to provide bibliographic information to the user public on these unreleased files to which limited access can be had.

Updating. Since new data series are frequently introduced, catalogs and indexes may need to be updated fairly often. Some agencies address this problem by creating new catalogs for successive time periods. This maintains currency, but unless the catalog is also cumulative over previous periods, the user must consult a number of issues to find reference to a particular one-time report. One of the major advantages to computerized cataloging is that updating can be performed continuously.

Recommended good practice.—1. All Federal statistical agencies and agencies with major statistical programs should publish brochures and flyers which describe the statistics they collect and publish, and how to access the statistics; these descriptive materials should be issued and updated in a timely manner.

2. All Federal statistical agencies and agencies with major statistical programs should prepare and publish reference materials which provide the user with clearly written technical guidance for using the agencies' data. Reference materials should also be regularly updated.

3. Agencies which serve sophisticated user communities should establish newsletters if the size and importance of their user community warrants it.

4. Agencies should devote special attention to the problem of adequate documentation for data files which are not available for public use but to which access is provided on some restricted basis.

5. Agencies should ensure that their programs for dissemination of information about data sources and contacts are systematically thought out and coordinated.

6. Statistical agencies are strongly encouraged to develop catalogs and directories which provide access information on major topics irrespective of which agencies hold data on the topics.

Inquiry Services

A major complaint of data users is that there is no coordinated starting point for statistical inquiries, especially for those which do not fall obviously within the purview of the major statistical agencies. Successful users are those with enough experience to know their way around. Several private sector for-pay inquiry services exist which are based on a combination of experience and trial and error rather than any sophisticated indexing or referral systems. Even at their best, existing inquiry services frequently require the user to perform an exhausting succession of telephone calls.

All agencies provide some inquiry services for interested information seekers but agencies vary in the quality and focus of such services. The agency services typically are prepared to locate and provide simple statistics, to describe how to obtain more detailed statistics, and to make referrals to subject specialists in areas beyond the expertise of the inquiry handler.

Services are sometimes specific to a statistical agency and sometimes located in the larger Department in which the agency resides. In these latter cases, the statisticians may not have direct con-

trol over the quality of inquiry services offered by the agency. Several agencies have sizable staffs trained in handling user questions. The Bureau of Census and the Bureau of Labor Statistics have regional inquiry services located in major cities.

Two agencies, the National Center for Education Statistics and the National Center for Health Statistics, operate centralized inquiry services; that is, the agencies publish a single address and telephone number to which all inquiries are first directed. The central inquiry services may then refer the inquirer elsewhere within the agency. By contrast, the Bureau of the Census, the Bureau of Labor Statistics, the Economics and Statistics Service (Agriculture), and the Energy Information Administration publish brochures containing "telephone contacts for data users." These brochures provide a subject-matter breakdown of agency statistics keyed to the names and telephone numbers of the agency personnel who are responsible for the subjects. For this latter set of agencies, the user can directly contact the person within the agency who is most able to answer the inquiry.

There is no argument here that a centralized inquiry system has any greater merit than a system which involves widespread dissemination of a list of telephone contacts for data users, or vice versa. Each system has considerable merit and the choice depends prinicpally on agency preference and experience for the most efficient way of conducting business. The point that should be emphasized is the importance of agencies having an inquiry handling system in the first place. The major statistical agencies do have such systems; other agencies which are essentially nonstatistical in overall agency mission but have sizable statistical programs do not have such services. These latter agencies provide considerable frustrations to the user until the user wades through the bureaucracy and develops informal means of acquiring information.

Several agencies record the number and kinds of telephone inquiries they receive. This information is tabulated periodically, sometimes weekly, and circulated to management. Some agencies reported that logging of inquiries provided useful clues concerning the interests of the user public.

The Office of Federal Statistical Policy and Standards plans to improve its mechanisms for assisting users in inquiries. The *Federal Statistical Directory* which has been published biennially by OFSPS lists the names, office addresses and phone numbers of key personnel in statistical activities in all Departments and agencies of the Federal Government. The *Directory* has not met all requirements for an interagency telephone contact list since it has traditionally listed personnel by agency organization only. Beginning in FY 1981, OFSPS will restructure the *Directory* into three levels. Level 1 will provide basic point-of-entry information concerning the statistical programs of agencies in the Federal statistical system. That is, Level 1 will give a single contact for information and publications for each major Federal statistical agency or program. (Level 1 was published in the October 1980 issue of *Statistical Reporter* as "Telephone Contacts for Federal Agencies with Major Statistical Programs.") Level 2 will present a subject matter listing for major statistical programs, essentially a governmentwide version of the "Telephone Contacts for Data Users" which are published by the Census Bureau, BLS and others. Level 3 will be the *Directory* in substantially the same form as it has been traditionally issued, the listing of personnel according to organizational table down to the branch or section stratum. In addition, OFSPS plans to computerize the *Directory* so as to reduce production costs, offer more rapid and timely publication, and make it easier to update.

A particularly nettlesome problem for both the general and sophisticated user communities is encountering agency personnel who will not take the time and trouble to answer inquiries fully and courteously. Agencies can train inquiry staff in proper conduct for dealing with users but inquiry staffs inevitably must refer complex queries to subject-matter and technical specialists. When these latter personnel handle questions brusquely or not at all, the user, who has often gone through a long series of referrals to reach the specialist, is left frustrated and alienated. Perhaps this phenomenon more than any other accounts for the hostility many users display toward the agencies.

Recommended good practice.— 1. All Federal statistical agencies should have a public inquiry service which answers queries from the general public. Telephone numbers for public inquiry should be published in agency brochures.

2. Statistical programs in agencies where statistics are embedded in a larger organization and does not have an inquiry service of its own should examine the larger inquiry service to ensure that queries of a statistical nature are well handled.

3. Agencies should study the utility to management of routinely logging public inquiries or at least spot-checking them periodically.

4. Agencies should sensitize all staff to proper attitudes in the handling of public inquiries.

Promotional and Marketing Services

Publicity, access mechanisms, and services.—The most common mechanism agencies use for bringing their statistics to the attention of the public is the press release. Press releases typically deal briefly with the highlights of a particular statistical report and are distributed both to the press and to others. Some agencies appear to depend heavily on the press release as a mechanism of data dissemination inasmuch as its free distribution is not monitored by the Government Printing Office and its preparation can be accomplished quickly. A major problem wih the press release as a data dissemination mechanism is that most access information is not newsworthy as far as the general public goes and therefore not really suitable for a press release.

Articles in professional journals or trade publications and papers at professional meetings are another way of publicizing the products of Federal statistical agencies. Papers prepared for these media can be tailored towards a more specialized set of data interests. The critical difficulty here is that the submission of articles to professional publications generally depends on the initiative and skills of the individual professional rather than being a coordinated component of an overall agency information program.

Some agencies display their statistical products and services in exhibit booths at conventions. The Census Bureau annually features exhibits at more than 50 trade and professional conventions and estimates that 100,000 current or potential data users are reached in this fashion. Other agencies are less active, a typical case being the presentation of an exhibit at three or four of the major conventions relative to the agency's main constituency. The less active agencies contend that staffing these exhibits costs them money and that either there is no visible payoff to increased exhibiting or no way to measure the payoff.

Direct-mail promotion, while a technique associated more with private business, is undertaken in some form by almost every statistical agency. Agencies maintain mailing lists of persons who have requested receipt of publications, press releases, announcements, order forms or similar mailings. Less common is the purchase of the mailing lists of professional association members, research or marketing executives or other commercially maintained lists.

In the private sector, the efficient updating and maintenance of mailing lists is a matter of intense managerial concern because mailing is a substantial cost item. Federal agencies, on the other hand, tend to treat mailing as a free service and are highly variable in the degree to which they scrutinize and clean their mailing lists so as to reduce costs and more effectively reach target populations. Federal regulations require annual purging of mailing lists, but it is questionable whether agencies uniformly follow the regulations. Management of mailing lists is definitely an area in which the Federal agencies could receive beneficial lessons from the private sector.

Advertising of statistical products in publications has typically been limited to the "cross-advertising" of one statistical publication in another statistical publication since cross-ads are published at no cost to originators and typically appear on pages which would have otherwise been blank at the end of a publication. Useful as they are, cross-ads do not reach out to a substantially new audience. Paid advertising in nongovernmental periodicals is relatively rare. Agencies often have formal restrictions on paid advertising and extensive red tape diminishes their use even though they might in some cases be the most cost effective promotional mechanism.

Several guidelines may be considered regarding agency publicity programs.

Comprehensive coverage. Agencies should seek to promote the full range of their data products or services which have general utility. Promotion should not be reserved only to publications if computer tapes are also available. Some agencies provide extremely limited publicity concerning computer tapes because they have to produce the tapes each time an order is placed and hence filling orders is inconvenient. This is a condition which should be remedied by explicit management initiatives.

Choice of medium. No single promotional medium is adequate in all cases. Choice of medium should be the result of a formal or informal

analysis of the market for a statistical product—a formal analysis in the case of major agency products—and consideration of which media will most effectively reach the target audiences within resource constraints.

Creativity. Advertising of statistics should be considered as challenging and important as other aspects of data access programs. Promotional material should be creatively designed with the purpose of getting the attention of, and providing the right information to, the prospective user.

Data applications.—The potential user who has no prior familiarity with a data base needs more than just information on its characteristics and availability. To generate significant interest, the user must have some idea of possible applications for the data. Information on the practical uses of a data set—as well as why it was collected in the first place—are therefore quite helpful in promoting the data set's usage. A secondary benefit which should receive increasing attention from the agencies is the fact that convincing statements regarding the practical utility of data may contribute to achieving cooperation from respondents in the data collection phase. Thus, there is good reason for agencies to prepare short descriptions of data applications for their data bases.

Few examples are available for applications-oriented materials. One instance is *Census Data for Community Actions,* a brochure which described the 1970 census of population and also included two pages of data use ideas. *Measuring Markets,* published by BEA, describes business applications of the economic accounts which are published by BEA in the *Survey of Current Business.* The *Survey of Current Business* itself has applications-oriented materials, such as regular articles on current business situations and economic trends; periodicals published by other agencies also are interspersed with an occasional article oriented towards applications. The Social Security Administration developed an article entitled "Policy Analysis with Social Security Research Files" as a result of a 1978 workshop of the same title. However, in the typical case the user must search out such materials; agencies do not feature publications which are specifically and wholly devoted to applications.

The available materials represent only a fraction of what is needed. The data producing agencies frequently plead that they do not have the expertise to describe data uses, while users respond that the producer is in the best position to give examples of data use. It is anticipated that the growing interaction between the producer and user communities could gradually lead to filling this need.

User training programs.—Provision of information on data access and use proves eventually to be not enough to satisfy user needs and leads to more direct interaction with the user in workshops, conferences and classroom training. Written informational materials have the advantage of permanence and wide distributability but personal forms of instruction give reinforcement to the learner and feedback to the instructor. Personal instruction is also more amenable to updating and adaptation. The instruction referred to here is not the substance or methodology of statistics as it might be taught in a university but rather is oriented towards availability, access and use of publicly available Federal statistics.

Federal agencies are turning to a variety of user training formats, from formal classroom training to user-producer conferences which focus on information exchange. NCHS, for example, has held a series of workshops for medical and health science librarians at State and regional meetings. The purpose of the workshops has been to aid librarians in identifying and using the data which appear in NCHS reports and in unpublished form, and also to acquaint them with services offered by NCHS. EIA has held one-day seminars entitled "Energy Information: What's Available and How to Obtain It." These have led to the development of tutorial seminars dealing with printed publications and how to access EIA data. The Economics and Statistics Service conducts Economics and Statistics Data Users Workshops to receive feedback on data needs from some of the agency's primary data users. BLS holds training courses for its own employees on LABSTAT, the agency's data base management system, and allows other users to attend the BLS courses. Social Security Administration's Office of Research and Statistics has held user conferences concerning the Continuous Work History Sample (CWHS), a practice which has been halted now that CWHS is no longer released. User workshops will be held in connection with the newly inaugurated Survey of Income and Program Participation (SIPP) once SIPP progresses to the point of having accessible data.

The Census Bureau conducts a broad educational program consisting of a variety of confer-

ences, seminars, workshops and courses. Seminars targeted towards Federal, State and local government personnel and librarians are held several times a year. Workshops are offered on such topics as accessing and using the Bureau's economic statistics, using machine-readable data products, making population estimates, and using census data to meet Federal legislative and administrative requirements. As an integral part of the economic, demographic and agriculture censuses, staff members participate in conferences around the country to familiarize data users with the availability and use of the products and services coming from these programs. The Census Bureau has also developed curriculum packages for the use of others in its College Curriculum Support Project. Student workbooks and case studies, a teacher's guide and reference manual and a textbook, *Census '80: Continuing the Factfinder Tradition,* have been developed within this project.

Substantial training is also provided through the Census Bureau's State Data Center Program, a cooperative data dissemination and user services program involving the Census Bureau and participating States. Through the combined efforts of State agencies (e.g., planning, community affairs, administration) and universities, the States provide services to data users such as inquiry handling, user training, orientation and consultation, library facilities, tape processing, and general analytical support for data use. The Census Bureau assists the States in developing the capacity for delivering these services by providing materials; resources such as printed reports, computer tapes and software, and maps; on-site training and technical assistance; and program coordination.

Beginning in October 1980, the *Statistical Reporter* periodically carries information on the training activities of the Federal statistical agencies. A calendar is published indicating forthcoming events in Washington, D.C., and around the country.

Among the issues to be considered in the area of training are the following.

Training technology. Statistical agencies should maximize the effectiveness of their user training by taking advantage of the principles of effective teaching and the growing body of new training tools. These include audiovisual aids—slides, charts, films, videotapes, etc., the use of exercises which involve the student in working with the data products being described, discussion of practical applications and methods which stimulate student inquiry. Computer-assisted instruction should become increasingly practical and desirable as microcomputers come into broader use.

"Multiplier effect." Increased payoff from training programs can be obtained by giving special priority to those audiences which may be in a position to convey the knowledge gained to potential users. College teachers, librarians and similar personnel can help achieve a "multiplier effect" in reaching a much broader audience ultimately than the agency could reach through direct contact. The 1978 Conference on Transfer of Methodology between Academic and Government Statisticians,[2] sponsored by the American Statistical Association, contained a number of useful recommendations which could increase the multiplier effect if implemented. In particular, if statistical agencies would interest and involve universities in their training programs, the universities might begin to take on some of the agencies' training functions themselves.

Preparation of self-study materials. Conferences and seminars are not substitutes for development of information in publishable form. Printed materials can be used by the conference attendee to reinforce classroom experience and for future reference. They are also available to users who cannot attend the conferences. Conferences and seminars are frequently useful in the process of developing self-study publications since the creators have a chance to get direct feedback on the materials being developed. Self-study materials would be particularly useful in assisting the notice to "break into the system," that is, to learn the basic pathways for accessing Federal agency data and what kind of yield to expect from working with these data.

Recommended good practice.—1. As regards direct-mail promotion, agencies should take care to manage their mailing lists so as to reduce costs and effectively reach target populations.

2. Agencies are urged to investigate more aggressively the use of paid advertising for their statistical products.

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[2]*Report on the American Statistical Association Conference on Transfer of Methodology between Academic and Government Statisticians,* March 8–10, 1978, Reston, Va., published by American Statistical Association, Washington, D.C., 1978.

3. Much greater attention and resources should be devoted to the development of materials which describe applications of the data which may be made.

4. User training should be considered an integral part of a full data access and user service program. Statistical agencies with sizable user communities which do not have user training programs should devise such programs.

Machine-Readable Data Files

Increasingly, Federal agencies are making statistical information available to the public in the form of machine-readable data files (MRDF's). Numeric or statistical MRDF's released by Federal agencies contain data from surveys, censuses, administrative records, and other sources. Data are generally either in summary or microdata form. Summary data are aggregations of individual record data, including time series. Microdata are unaggregated data, the actual responses of individuals, whether the individuals be natural or legal persons, although the responses are usually in an edited and cleaned form rather than in "raw data" form.

In 1978 a conference was held on Cataloging and Information Services for Machine-Readable Data Files[3] at Airlie House in Warrenton, Virginia. Organized by Data Use and Access Laboratories with funds provided by the National Science Foundation, the conference brought together 55 participants from government, academia, and private industry to discuss the issues surrounding MRDF's. The final report of the conference, entitled *Federal Machine-Readable Data Files: The State of Information Services*, contains a catalog of some of the difficulties surrounding MRDF's and is worth quoting at length.

> Although machine-readable data files have become important and valuable information resources for researchers, policy-makers and administrators, they are vastly underutilized resources. The process of identifying, assessing, acquiring, and using machine-readable files is hindered at every stage by a dearth of information about the files. The types of uses of machine-readable files vary according to the subject matter and the purpose of the user. Whatever the field of research or the data need, however, all users of machine-readable documents share some problems. They need a way to learn what files exist, what data they contain, and how best to use them. The first stumbling block encountered by a potential user is usually a lack of information about what data files exist, and which are publicly available. If a user finds a file of value, the next problem encountered is to find comprehensive and adequate file documentation with details on the technical characteristics of the file, how the file was produced, and procedures for assessing the file. . . .
>
> A contributing factor to the underutilization of machine-readable files is that they are basically "invisible" to many potential users. Data files are frequently housed separately from other sources of information, oftentimes at considerable distances. Libraries generally do not have machine-readable data files as part of their collections. . . . In many federal agencies, data file dissemination activities are far removed from traditional "hardcopy" data distribution mechanisms. . . .
>
> The problems facing a user in identifying existing federal statistical data resources are accentuated by the fact that 38 different federal agencies are involved in data producing activities. Each agency has independence of authority for its own data programs, procedures, and statistical objectives. The MRDF user is confronted with diverse agency information and dissemination policies that control his or her access to information about the files and to the files themselves. This inconsistency in policies is also attributable to the fact that each agency has a different legal mandate defining its role in producing and distributing data files, and each agency has different internal views as to its responsibility in actually assisting people in using the data files. The result for the user is that only people who have specific or "insider" knowledge about a particular agency's files, or people who have a great deal of time to invest in searching for these files, end up using them.

Agency practices.—The recent OFSPS survey of statistical agency practices in data access indicated that virtually all surveyed agencies were in the business of releasing public use MRDF's. Out of 11 agencies, only the Bureau of Mines and the Energy Information Administration did not do so; EIA was preparing to release MRDF's and the Bureau

[3] *Federal Machine-Readable Data Files: The State of Information Services*, Final Report submitted to the National Science Foundation, Data Use and Access Laboratories, Arlington, Va., 1980.

of Mines, which had transferred its public use files to the Department of Energy, planned to resume file issuance in the future.

The number of files issued varied from 15 to 1,200 per agency and the number of copies disseminated in a year ranged from several hundred to 3,000. Agencies that did a relatively high volume of business in MRDF dissemination also published catalogs or directories (cf. Appendix A). These publications were highly variable in the kinds and quantity of information provided. All agencies that released MRDF's made available documentation, although only a few agencies had standardized the documentation within the agency.

About half of the agencies handle their own dissemination of data files, including costing and billing. Several agencies utilize the services of the National Technical Information Service (NTIS) and several also use the National Archives and Records Service (NARS). Some agencies employ a combination of either NTIS or NARS and their own facilities.

Two agencies issue software releases although others are considering doing so. NCHS has considered providing sample data sets at the front of a file so that users might ascertain whether they want to process the entire large data base. NCES is now providing users with control cards for major statistical packages such as SPSS and SAS, as well as machine-readable codebooks, at the front of some of its files.

Procedures for determining which files will be released for public use vary from agency to agency without any systematic pattern. In most agencies, there is no formal consideration given to the matter of which files to release or when to release them. Timeliness in release of publications usually does not extend to timeliness in release of MRDF's.

Various agencies have begun special initiatives for servicing the community of MRDF users. NCHS has begun holding data tape users conferences. Participants in the conferences have been able to select workshops on specific data tapes and to attend some general sessions on data application and use. NCHS' data access program is also having an impact on formal university classroom instruction; a program of distributing data tapes free to selected schools of public health has led to the creation of new university courses such as one on the handling of large data bases. The Census Bureau's State Data Center Program for cooperative data dissemination and user services includes provision of computer tapes and software as well as on-site training and technical assistance. Social Security Administration's Office of Research and Statistics (ORS) held a Workshop on Social Security Files for Policy Analysis in 1978. The workshop, attended by 200 participants, was an in-depth interaction with users of SSA's data files.

Agency documentation standards.—Only half of the agencies contacted in the OFSPS survey reported that documentation for MRDF's was standardized within the agency. No standardization exists across agencies except for the Federal Information Processing Standards (FIPS) of the National Bureau of Standards which are often observed in the breach and which do not widely apply to data access considerations anyway. The only existing Federal statistical publication which offers guidelines for technical documentation of statistical MRDF's is: Richard C. Roistacher, *A Style Manual for Machine-Readable Data Files and Their Documentation,* published by the Bureau of Justice Statistics.[4]

What does it mean for the data user when there are no effective standards for MRDF's? Again the report of the Airlie House conference is valuable.

> A prospective user of MRDF faces a problem with identifying existing data resources. This problem exists in part because there are no bibliographic control standards for MRDF. Bibliographic control consists of standard and consistent methods for listing titles of works and for naming the people or organizations responsible for producing them. Without these standard procedures, no coordinated system of information services . . . can be created for MRDF.
> Lack of bibliographic control diminishes the accuracy and usefulness of any information services or aids that are developed for MRDF. It is difficult to produce reliable directories of listings of data files if the titles vary with each organization that holds a copy of the file. . . .
> Problems multiply. Data files, unlike books, do not have title pages. MRDF documentation does not have "title page equivalents" which could succinctly list all of the necessary bibliographic

[4]Richard C. Roistacher, *A Style Manual for Machine-Readable Data Files and Their Documentation,* Report Number SD-T-3, NCJ-62766, Bureau of Justice Statistics, U.S. Department of Justice, Washington, D.C., 1980.

information. In fact, the title appearing in the documentation often differs from the one appearing on the tape reel. There is no one place in the documentation to find details on the producing agency, date of survey, or distributing organization. In addition, data files, unlike books, can exist for a period of time without a title at all, known to users only by a study number . . . or by the name of the person(s) that compiled the data. . . . Titles can change over the course of a study as the principal parties responsible for the data collection, processing and analysis change over the life of a data file, as the data are reprocessed and reissued.

Clearly the process of developing data access and user services within Federal statistical agencies must include the development and enforcement of standards governing bibliographic abstracts and technical documentation. This is not an easy task as witnessed by the fact that the problem is as widespread outside of Government as within. Nonetheless, the day must come when agencies are not allowed to create MRDF's for public use or for relatively permanent agency use unless they simultaneously create standardized documentation.

Some of the issues that must be considered as regards documentation of MRDF's are as follows.

Completeness. One of the most frequently encountered problems in establishing data documentation standards is that features included in printed reports are not included in data documentation. The printed report will include concept definitions and methodological information but the same information is absent from documentation for data tapes, printouts or microfiches.

Availability. Descriptive material needs to be available at least by the time the data file is released. Advance information is highly useful where the user is likely to need lead time for programming, gathering collateral data, etc. On the other hand, there are examples of data files whose release was delayed or even thwarted by absence of adequate documentation. This has been especially common with files originally prepared for within-agency purposes and later thought to be potentially useful elsewhere.

Packaging. Each report or file documentation should at least include explicit cross referencing to all other applicable materials. A new packaging issue is the inclusion of data file documentation on the same tape as a machine-readable data file.

Updating. In many cases the need arises for distributing error notices or other updates to recipients of the data. Mailing lists of purchasers can be maintained, error notices can be published in a periodical, or a "hotline" can be established.

Quality and consistency of abstracting and indexing. A perennial problem to users of catalogs and directories is that the abstracts which may be adequate for describing a publication are not satisfactory for comparing one data product with another. For example, a general-purpose data set such as a report from the decennial census of population may contain data on unemployment. These data are embedded among many others and the abstract may not highlight the unemployment variables.

First steps towards bibliographic control will be taken by OFSPS in FY 1981. During that year, OFSPS will introduce a new statistical policy directive which will require agencies to follow a uniform standard for bibliographic entries and abstracts. Also in FY 1981, OFSPS will initiate the *Directory of Federal Statistical Data Files* which is intended to grow into a comprehensive standardized directory of public use MRDF's. While these actions will represent major steps towards standardization, there will still remain the task of developing standards for technical documentation of MRDF's.

Procedures governing file release.—Many agencies interviewed in the survey of data access activities had never considered establishing procedures for deciding whether and when to release a public use MRDF. Some agency personnel stated that the matter was handled on an individual divisional basis and was usually up to the division chief. In some cases, divisions were said to hold onto data files for years after official printed publication and for years after the files could have been released because individual agency officials had personal interests of their own in milking the data for various publications. The overall impression emerging from these interviews was that almost no agency in the Federal statistical system has well-thought-out, agencywide procedures for deciding whether a particular data file qualifies for public release.

Similarly, agencies appear to give little careful thought to when files should be released. When

agencies speak of timeliness in publication of statistical products they are almost always referring to printed publication. Timeliness in the release of MRDF's is seldom considered. It is as though the issuance of MRDF's is a luxury product, not something that the agencies are bound to give to the public.

Federal agencies have not addressed the question of devising orderly procedures for deciding whether and when a public use MRDF will be released. If procedures do not exist for systematically clearing MRDF's, then it is probably also true that agencies do not systematically review their data base holdings with a view to providing users more data.

Recommended good practice.—1. Statistical agencies and statistical programs must devote special attention to the problem of adequate abstracting and technical documentation for public use MRDF's. In particular, over and above the forthcoming OFSPS standards for abstracts, each agency should establish within-agency standards for technical documentation, and ensure that the standards are enforced.

2. Agencies should establish procedures for determining whether and when public use MRDF's will be released.

3. Agencies should begin applying to the release of MRDF's the same standards for timeliness as are applied to printed publications.

Issues for the Future

Within the scope of this paper it has been possible to discuss only a few of the issues facing the Federal statistical system in the area of data access and user services and to suggest the directions in which solutions may lie. In this section is presented a set of final issues which need to be addressed.

Provision of software and other aids.—As a matter of convenience and efficiency, many MRDF users would prefer that the statistical agencies provide not only the product but also a system for retrieving the data. Suggestions generally fall into three categories: (1) software and associated tools; (2) computer printouts; and (3) access via remote computer terminal.

More and more agencies are seriously considering providing these additional services, particularly software. BEA's public use files already include software releases. One release contains four computer programs for seasonal adjustment, composite-diffusion indexes, and series processor. Another, PLANETS, consists of a program to manage time series databases as well as several other functions. EIA is planning to release its Applied Analysis Models which include software. NCHS is considering providing users with sample data sets so that they can explore the documentation, format, sample frame considerations, and other data problems before undertaking a full-scale and often expensive analysis of a particular data base. Part of the reason NCHS is disposed to move in this direction is because many of its data users appear to be unfamiliar with the problems of handling very large data bases. Similarly, NCES is beginning to provide users with sets of control cards for major statistical packages such as SPSS or SAS. For the 1980 census of population, the Census Bureau will provide users with CENSPAC, a software package designed especially for retrieval from the census MRDF's. The Census Bureau also provides COCENTS, a statistical tabulation package, to users.

Agencies provide these services under the rationale that their responsibilities to users do not end with the provision of data. In their view, if they are to give users benefits such as improved technical documentation and extensive outreach activities and training programs, then the provision of software and similar aids is simply a natural and reasonable extension of other services. The purpose is to give the user the data and help the user to use the data; readymade software is a way of helping the user to use the data.

While this line of reasoning seems unexceptionable, the experience of other agencies suggests that provision of software and other computer aids to users may run afoul of public/private sector restrictions. OMB Circular No. A-76 was invoked by private firms when BLS began investigating the vending of the LABSTAT system through NTIS. The firms contended that for Federal statistical agencies to release software, such as the LABSTAT data base system, was to infringe upon the legitimate interests of the private sector. While Federal agencies can claim to be a unique resource in the provision of federally collected data, they have greater difficulty making such a claim when it comes to computer software and other aids, areas in which there is known to be a highly developed private sector.

Indications are that BLS will not remain an isolated case. Other agencies are contemplating plans for various software releases that may engender resistance from the private sector. Indeed, one of the major reasons user demand for Federal statistics continues to rise is that users are becoming increasingly sophisticated in the commercial exploitation of federally collected data, often with the curious result that the Federal Government is a large customer in buying back its own data in various forms.

Statistical agencies that contemplate releasing software aids for users would be well advised to anticipate public/private sector conflicts by conferring with their private sector communities at the planning stage. There are many gray areas in the roles of public and private organizations. Only by communicating in advance will Federal agencies avoid substantial conflict with the private sector.

Pricing.—No uniform standards exist among Federal statistical agencies for setting prices on their machine-readable data files. Agencies operate under the general requirement that they must recover their costs in producing such tapes but all admit that it is very difficult to estimate with any exactness what those costs are. It is generally accepted that users are not to be charged any costs associated with original collection and processing of data, that they are to be charged only the marginal costs associated with producing the data for public use release.

However, the matter is not so simple. As user demand rises for various services to be rendered together with the release of data, the question arises as to whether users should be charged more. For example, if release of a public use file comes to mean issuance of computer tapes, provision of extensive technical documentation and offering of sophisticated user training programs, are agencies justified in considering all of these functions as part of the marginal costs of producing public use files? Moreover, some agencies are beginning to question the assumption that users should not be charged for any of the basic collection and processing costs. As agency philosophies shift towards the notion that data are in some important sense collected and processed in order to service users, some argue that this notion offers a foundation for charging users some portion of the basic costs. A coordinated interagency approach is needed to address this problem on a systemwide basis.

Off-loading data access functions.—On the one hand, most statistical agencies report an ever-rising demand for data access and user services. On the other hand, the agencies report an insignificant level of resource allocation for data access and user services. Under these circumstances it is reasonable to expect that agencies will look for solutions to data access problems which do not involve allocation of scarce—indeed nonexistent—resources.

Some agencies have begun to have various data access and user service functions performed by other agencies within the Federal Government. NCHS, for example, now disseminates all of its MRDF's through NTIS. NTIS proves attractive to NCHS in part because NTIS removes a troublesome workload from NCHS, a workload which continued to grow in the face of constant scarcity of resources for data access. Similarly, BLS is investigating the possibility of having NTIS handle all of its MRDF dissemination.

A relatively pure example of off-loading of the data access function is found in the Bureau of Justice Statistics. All handling of BJS public use data files is carried out through the Interuniversity Consortium for Political and Social Research (ICPSR) at the University of Michigan. ICPSR maintains the Criminal Justice Archive and Information Network (CJAIN) under a cooperative agreement with BJS. BJS' cooperative agreement pays for processing of data and, when users request a data file, they pay only for costs of blank tape. Costs to users are set by ICPSR and they also bill users. For data collected by the Census Bureau for BJS, data tapes are sent directly from the Census Bureau to ICPSR and the documentation is also provided by the Census Bureau to ICPSR. Through ICPSR the user has access to OSIRIS and other locally supported software packages.

ICPSR features remote access to the University of Michigan computing facility through the Telenet communications system. CJAIN users are thus linked to one another by a teleconferencing computer network. Any user who has a Michigan computer account can utilize CJAIN. The Telenet system allows rapid communication among users and between CJAIN and its users. A constant stream of messages if fed to the user; for example, abstracts of recent criminal justice studies can be accessed routinely over the Telenet system.

With this arrangement, BJS has effectively "contracted out" its data access and user services func-

tions. From all appearances, the BJS model appears to have gained the agency great flexibility and a very high level of user-oriented servicing. For agencies which struggle to find resources to provide minimal services to users, BJS' arrangement with CJAIN could well be a source of envy.

The trend towards increased usage of NTIS on the part of some statistical agencies invites coordination and intelligent planning. NTIS is a unique kind of agency and not without its difficulties. The agency is required to be self-supporting from the sale of its products and some client agencies have complained that NTIS charges far more for computer tapes than the agencies themselves would have to charge, perhaps by a factor of four or five. However, other agencies have had some success in negotiating with NTIS for lower rates. With planning and coordination, several statistical agencies could approach NTIS jointly to negotiate a package of services which could be highly beneficial to both the statistical agencies and assure a substantial volume of business to NTIS.

User surveys.—A few Federal statistical agencies have carried out surveys to ascertain information needs of users. The Economics and Statistics Service (ESS) has made the most extensive investments in user surveys. In 1978, ESS commissioned the National Opinion Research Center (NORC) to conduct a study of farm operators' opinions towards statistical and economic information, including their principal concerns about crop and livestock reports and their reactions to their personal experience with USDA surveys. NORC's telephone survey covered farmers and ranchers in North and South Dakota. In 1979, ESS had NORC survey farm operators in Alabama, Illinois and Ohio to investigate the ways farmers use information to assist them in making production and marketing decisions. Still a third user survey was conducted by ESS on economic information needs of farmers. ESS has found the surveys valuable in areas such as respondent feedback. For example, the Dakota survey revealed that farmers had doubts about the accuracy and confidentiality of the surveys. This finding has led ESS, among other things, to change its training for enumerators so that the purposes of the survey and the uses of the data are better explained.

Many agencies carry out surveys to see whether they are having the intended impact on the public or to evaluate specific products. Only recently has the idea gained currency—seldom translated to action—that it would be useful to survey users of agency data. To be sure, agencies solicit feedback from their user communities through many channels, but the formalized survey is seldom one of the channels.

Formalized user surveys should become a regular feature of statistical agencies' data access programs. The potential already exists for some agencies to easily survey their users. Agencies which hold regular user conferences are in a position to survey their users since they bring them together for conference functions. Agencies also maintain mailing lists for subscribers to their MRDF services so that mail surveys could be easily mounted.

Conclusion

Designing data access into statistical programs.—Federal statistical agencies continue to remark that funds for data access services are not available within their budgets. No Federal agency has a budgetary line item for data access. The closest any agencies come to budgeting for data access lies in those agencies that have an identifiable organizational unit to perform data access and user services functions; these agencies can at least identify the amount of funds allocated to the organizational units. Similarly, agencies do not report plans for including such funds in future budget requests.

The problem of organizing and budgeting for data access traces back to the original design of statistical programs. When management officials are designing statistical programs they do not take into account the requirements of data access. This situation will not be cured until agencies adopt as routine procedure the practice of including data access functions in the basic design of programs.

Unless there are compelling reasons to the contrary, such as confidentiality restrictions, the end point in the operations of a statistical program should be defined as the issuance of public use data files and the provision of technical documentation and services for users of those files. As new statistical programs arise, data access considerations should be taken into consideration from the very outset of program design. As existing programs come up for redesign, data access should be included in redesign.

This review of data access and user service activities among agencies within the Federal statisti-

cal system reveals that a great many steps are being taken by individual agencies to improve current conditions. A number of agencies are utilizing imaginative approaches to serving the needs of their users. What is needed now is for agencies to recognize the importance of the data access function to their missions and to commence the lengthy task of factoring user needs into the planning and implementation of their statistical programs.

On the other hand, many agencies are doing little or nothing to orient their data outputs toward current technological advances in data transfer and processing or toward redesigning their data dissemination programs with user needs in view. Most of the "recommended good practices" contained in this paper can be carried out by agencies with existing resources and can be designed into existing programs.

Most importantly, agencies are not coordinating their efforts with one another to a sufficient degree, with the result that lessons learned in one agency are not benefiting others. Agency policies and practices are highly diverse and represent a source of continuing frustration for users. A coordinated approach to improving data access and user services is a primary need for the future.

Appendix A

*Federal Statistical Data File Catalogs and Directories**

Bureau of the Census

Directory of Data Files, Bureau of the Census, U.S. Department of Commerce.

This publication contains structured descriptions of public use data files and computer software available from the Census Bureau. Available on a subscription basis, the publication is updated regularly.

The Census Bureau also issues other publications such as data finders and data locator guides, oriented toward specific statistical program products. More detailed, data item level references, are contained in data file dictionaries (printed and machine-readable form) prepared for the more highly utilized files.

Bureau of Economic Analysis

Catalog of Publications and Computer Tapes, Bureau of Economic Analysis, U.S. Department of Commerce.

This report contains brief summary descriptions of public use data files and related computer software available from the agency. The report is updated irregularly.

Bureau of Labor Statistics

BLS Data Bank Files and Statistical Routines, Report 507, Bureau of Labor Statistics, U.S. Department of Labor.

This publication generally describes public use data files and computer software produced and distributed by the agency. Prepared in 1978, the report is now out of print. Updates are now being prepared and a revised report may be released by BLS.

General Accounting Office

Federal Information Sources and Systems 1980, U.S. General Accounting Office.

This publication describes Federal sources and systems maintained by the executive agencies which contain fiscal, budgetary, and program-related information. The report is prepared as a part of the *Congressional Sourcebook Series* and is an update to a volume prepared in 1977. The report contains descriptions of many statistical files prepared by government agencies.

National Archives and Records Service

Catalog of Machine-Readable Records of the National Archives of the United States, National Archives and Records Service, U.S. General Services Administration.

This catalog is a second edition publication which describes machine-readable data files accessioned by the National Archives. A new catalog is now being prepared and is expected to be available in early 1981. The publication will contain statistical and other types of files.

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*This list was adapted from a paper prepared by Warren Glimpse, Warren Glimpse and Co., Arlington, Va.

National Center for Education Statistics

Computer Tapes Available from NCES, National Center for Education Statistics, U.S. Department of Education.

This report contains brief summary descriptions of files which are available for public use through the National Center for Education Statistics. The report is updated frequently.

Directory of Federal Agency Education Data Tapes, National Center for Education Statistics, U.S. Department of Education.

This publication contains structured descriptions of data files produced by Federal agencies which contain education-related data. The report was prepared in 1979.

National Center for Health Statistics

Catalog of Public Use Data Tapes from the National Center for Health Statistics, DHSS Publication No. (PHS) 81-1213, National Center for Health Statistics, U.S. Department of Health and Human Services, November 1980.

This report generally describes NCHS statistical programs from which data are produced in machine-readable form and summarizes the content and structure of public use files prepared. The report is updated annually.

National Technical Information Service

Directory of Computerized Data Files and Computer Software, National Technical Information Service, U.S. Department of Commerce.

This report contains descriptions of data files and computer software distributed by the agency. Originally prepared in 1974, the publication was updated in 1976; it is now out of date.

Office of Federal Statistical Policy and Standards and National Technical Information Service

Directory of Federal Statistical Data Files, Office of Federal Statistical Policy and Standards and National Technical Information Service, U.S. Department of Commerce.

A preliminary version of this report was prepared in early 1980 for use by the Interagency Committee on Data Access and Use to facilitate preparation of a production version. The publication contains structured descriptions of statistical data files produced by the Federal Government. The preliminary version is now out of print and the first production version is expected to be published in February 1981.

Social Security Administration

Research Publications and Microdata Files: Spring 1980, Office of Research and Statistics, Social Security Administration, U.S. Department of Health and Human Services.

This report contains a brief summary description for individual microdata files produced by the SSA Office of Research and Statistics. Content, technical features, and availability are described. The catalog is updated frequently.

Appendix B

Selected Data Access Publications

Note: *The term "data access publication" is loosely defined as a publication which is specifically directed toward assisting users in accessing and using data. It is distinguished from statistical reports, catalogs of publications, technical documentation, brochures and newsletters. Following is a nonexhaustive list of data access publications available from Federal agencies.*

Bureau of the Census

Census Bureau Guide to Transportation Statistics, March 1976, GPO No. 003-024-01179-4.
This guide describes the 1972 Census of Transportation and its three components—the National Travel Survey, the Truck Inventory and Use Survey, and the Commodity Transportation Survey.

Data Access Descriptions, issued irregularly, 1967 to present. User-oriented, topical reports on accessing and user census data and products. Includes the following:

—*1970 Census Geography: Concepts, Products and Programs*
—*Current Survey Statistics Available from the Bureau of the Census*
—*Microdata from the Survey of Income and Education*
—*Data from the Annual Housing Survey*

Directory of Federal Statistics for Local Areas: A Guide to Sources, 1976, March 1978, GPO No. 003-024-01553-6.

Describes and cites individual tables from reports issued by Federal agencies. Subjects and geographic areas smaller than States are displayed in tabular format.

Directory of Federal Statistics for Local Areas: Urban Update, 1977–78, in press.
Similar to directory immediately above except that geographic focus is on cities, SMSA's, labor market areas and the like.

Guide to Foreign Trade Statistics, 1975, GPO No. 003-024-01082-8.
Describes content and format of individual reports, tabulations, computer tapes, etc., on exports, imports and shipping statistics.

Guide to Industrial Statistics, April 1978, GPO No. 003-024-01557-9.
Covers content and format of censuses of manufactures and mineral industries, and the Annual Survey of Manufactures.

Guide to Recurrent and Special Governmental Statistics, April 1976, GPO No. 003-024-0177-8.
Summarizes tabular presentations found in most recent issues of the recurrent reports and special studies series of the Bureau's State and local government statistics program.

Guide to the 1972 Census of Governments, February 1975, GPO No. 003-024-01004-6.
Gives summary description of each subject volume in the 1972 Census of Governments report series.

Mini-Guide to the 1977 Economic Censuses, November 1978, GPO No. 003-024-01640-1.
A guide to each of nine economic census programs, describing the data collected, geographic areas, publications program, SIC system and indicates related economic statistics available.

1980 Census Users' Guide, forthcoming.
A guide to the 1980 Census of Population and Housing.

Reference Manual on Population and Housing Statistics from the Census Bureau, March 1977.
A comprehensive discussion of census and survey reports and computerized products, with attention to limitations as well as strengths of the various data and to skills required to find specific data.

Factfinder for the Nation, Series CFF, issued irregularly.
A series of topical brochures describing the range of census materials available on a given subject. In particular, Factfinder No. 5, "Reference Sources." provides a bibliography of Census Bureau data access publications.

Census '80, Introduction to Products and Services, November 1979.
A general introduction to the 1980 Census of Population and Housing data.

Housing Data Resources: Indicators and Sources of Data for Analyzing Housing and Neighborhood Conditions, Summer 1980.

The Census Bureau's GBF/DIME System: A Tool for Urban Management and Planning, September 1980.

Bureau of Justice Statistics

Inter-University Consortium for Political and Social Research, *Guide to Resources and Services: 1979–1980,* Ann Arbor, Michigan: Institute for Social Research, 1980. This *Guide* provides information on all of the resources and services offered by ICPSR of which the Criminal Justice Archive and Information Network (CJAIN) is a part. These include data archiving, data access functions related to the archives, training in a variety of areas related to ICPSR, and computing assistance.

Bureau of Labor Statistics

BLS Data Bank Files and Statistical Routines, Report 507, Bureau of Labor Statistics, U.S. Department of Labor, 1978.
To facilitate economic and social research, this report describes the data and analytical routines BLS is prepared to offer for distribution to the research community.

Information Processing at BLS, Report 583, Bureau of Labor Statistics, U.S. Department of Labor, March 1980.
This report provides a history of information processing at BLS, describes the agency's use of the computer for research, its approach to third-generation computers and the new directions represented by LABSTAT.

Economics and Statistics Service

Crop Reporting Board Catalog: 1981 Releases, ESCS/USDA, Washington, D.C.
The Crop Reporting Board estimates production, stocks, inventories, disposition, utilization, and prices of agricultural commodities, and such other items as labor, farm numbers, and fertilizer. This catalog outlines all of the estimates and the dates they are available.

Energy Information Administration

Energy Information Referral Directory, Energy Information Administration, Department of Energy, January 1980.
The National Energy Information Center (NEIC) provides energy information and referral assistance to Federal, State, and local governments, the academic community, business and industrial organizations, and the general public. . . . To assist the NEIC staff in directing inquiries to the proper office within the Department of Energy (DOE) or other Federal agencies, the *Energy Information Referral Directory* was developed . . . . The arrangement of the *Directory* is topical. The office of primary interest for a particular activity in DOE or other agencies is listed.

EIA Publications Directory: A User's Guide, EIA, Department of Energy, second edition, February 1980.
EIA's directory of publications contains descriptions of 361 periodical reports and one-time publications, a list of survey forms, and information on microfiche files and data tapes. A comprehensive subject index, a report number index, a title index, and information about how to order all of the items listed both individually and by subscription are added to make the *Directory* as helpful and easy to use as possible.

EIA Data Index: An Abstract Journal, DOE/EIA-0233(80), EIA, U.S. Department of Energy, December 1980.
The data index is a semi-annual publication which is a companion volume to the user's guide to the EIA Publications Directory. It highlights the tables, graphs and formatted data presented in EIA's statistical publications.

National Center for Health Statistics

Facts at Your Fingertips: A Guide to Sources of Statistical Information on Major Health Topics, fourth edition, Fall 1979, DHEW Publication No. (PHS) 80-1246, DHEW, National Center for Health Statistics.
This guide lists sources of statistical information on over 100 major health topics, and references NCHS data on particular topics and other public and private sources of information.

NCHS Publications on the Health of Minorities, May 1980, DHEW Publication No. (PHS) 80-1315-3.
An annotated bibliography of selected NCHS reports which present data by race, color or ethnic background.

NCHS Publications on the Health of Women, April 1980, DHSS Publication No. (PHS) 80-1315.
An annotated bibliography of selected NCHS reports which present data on health topics of special interest to women.

NCHS Publications on the Health of the Elderly, November 1980, DHSS Publication No. (PHS) 81-1315-4.
An annotated bibliography of selected NCHS reports which present data on health topics concerning the elderly population.

Social Security Administration

Lois A. Alexander and Thomas B. Jabine, "Access to Social Security Microdata Files for Research and Statistical Purposes," *Social Security Bulletin,* August 1978, Vol. 41, No. 8.
This article focuses on the characteristics of SSA microdata files and on the development of a disclosure policy aimed at serving the public interest while protecting the privacy of individuals and the confidentiality of research and statistical information.

Wendy Alvey, "Policy Analysis with Social Security Research Files," *Statistical Reporter,* May 1980.
This article describes SSA's Workshop on Policy Analysis with Social Security Research Files held in March 1978 in Williamsburg, Va.

"Some Statistical Research Resources Available at the Social Security Administration," Office of Research and Statistics, Social Security Administration, April 1979.
This brochure describes the nature and availability of data from SSA's Lifetime Earnings Records and Continuous Work History Sample.

CURRENT DEVELOPMENTS

CALENDAR OF TRAINING ACTIVITIES

The following is a calendar of training seminars and workshops on Federal statistics, which will be conducted by the Bureau of the Census from April through December 1981. For further information contact: Deborah Barrett, Chief, User Training Branch, Data User Services Division, Bureau of the Census, Washington, D.C. 20233, telephone (301) 449-1645.

DEPARTMENT OF COMMERCE

Bureau of the Census:

Title: Intergovernmental Seminar on Accessing Federal Statistical Resources
Place: Washington, D.C.
Date: April 6–9, 1981

Title: Introduction to Methods of Making Population Estimates
Place: Atlanta, Georgia
Date: April 6–10, 1981

Title: Workshop on Accessing Statistical Resources from the Census Bureau
Place: Boston, Massachusetts
Date: April 13–15, 1981

Title: 1980 Census Machine-Readable Data Products and Software
Place: Detroit, Michigan
Date: April 15–16, 1981

Title: Introduction to Demographic Analysis
Place: Dallas, Texas
Date: May 4–5, 1981

Title: Elementary Methods for Population Projection
Place: Dallas, Texas
Date: May 6–8, 1981

Title: Introduction to Census Bureau Geography, Geocoding and GBF/DIME Files
Place: Minneapolis, Minnesota
Date: May 12–14, 1981

Title: Workshop in Using Census Data to Meet Federal Statistical Requirements
Place: Philadelphia, Pennsylvania
Date: May 13–14, 1981

Title: Seminar for Librarians/Information Specialists on Accessing Federal Statistical Resources
Place: Washington, D.C.
Date: May 18–21, 1981

Title: 1980 Census Machine-Readable Data Products and Software
Place: Chicago, Illinois
Date: May 27–28, 1981

Title: Workshop on Accessing Statistical Resources from the Census Bureau
Place: Detroit, Michigan
Date: June 9–11, 1981

Title: Introduction to Census Bureau Geography, Geocoding and GBF/DIME Files
Place: Seattle, Washington
Date: July 7–9, 1981

Title: Workshop on Accessing Statistical Resources from the Census Bureau
Place: New York, New York
Date: July 21–23, 1981

Title: Workshop on Accessing Statistical Resources from the Census Bureau
Place: Denver, Colorado
Date: September 15–17, 1981

Title: 1981 Census Machine-Readable Data Products and Software
Place: Atlanta, Georgia
Date: September 22–23, 1981

Title: Introduction to Census Bureau Geography, Geocoding and GBF/DIME Files
Place: Los Angeles, California
Date: September 22–24, 1981

Title: 1980 Census Machine-Readable Data Products and Software
Place: Philadelphia, Pennsylvania
Date: October 14–15, 1981

Title: Seminar for Librarians/Information Specialists on Accessing Federal Statistical Resources
Place: Washington, D.C.
Date: October 19–22, 1981

Title: Workshop on Accessing Statistical Resources from the Census Bureau
Place: Kansas City, Kansas
Date: October 27–29, 1981

Title: 1980 Census Machine-Readable Data Products and Software
Place: Boston, Massachusetts
Date: November 3–4, 1981

Title: Introduction to Census Bureau Geography, Geocoding and GBF/DIME Files
Place: Charlotte, North Carolina
Date: November 3–5, 1981

Title: Intergovernmental Seminar on Accessing Federal Statistical Resources
Place: Washington, D.C.
Date: November 16–19, 1981

Title: Workshop on Accessing Statistical Resources from the Census Bureau
Place: Atlanta, Georgia
Date: December 1–3, 1981

Title: 1980 Census Machine-Readable Data Products and Software
Place: Washington, D.C.
Date: December 8–9, 1981

TRANSPORTATION DATA STANDARDS

The Department of Transportation's Research and Special Programs Administration (RSPA) and the Department of Commerce's National Bureau of Standards (NBS) recently signed an interagency agreement relating to the standardization of data elements and representations (codes) used in automated transportation statistics, and data and information systems. RSPA will take the leadership in developing transportation data standards for use in the Federal establishment. The agreement's aim is to reduce the burden imposed by Federal reporting requirements, save money, and increase the use of existing data files. NBS arranges with Federal agencies to develop certain standards that are used by Federal agencies. For specific details of the agreement, see the *Federal Register* for Wednesday, December 24, 1980. (PAMELA S. POWELL-HILL, OFFICE OF FEDERAL STATISTICAL POLICY AND STANDARDS, DEPARTMENT OF COMMERCE, telephone (202) 673-7977)

WORLD POPULATION 1979

The Census Bureau's International Demographic Data Center has recently issued the latest report in its *World Population* series. The 502-page document presents reported and estimated demographic data for the 200 countries of the world with a population of at least 5,000 persons, and for world regions. Benchmark, or hard, data for each country include the enumerated and adjusted population from the latest census or survey, birth and death rates, annual rate of population growth, life expectancy at birth, and infant mortality rate. A projected estimate of the population of each country for 1979 as well as birth and death rates and the annual rate of growth for 1978 are shown. All benchmark data and projected estimates are annotated, and major sources are listed. Also included for each country are population figures for each census taken since 1950, and a series of population estimates for 1950 to 1979. An introduction describes the availability of data, and brief texts summarize demographic trends in the world and major regions.

Copies of the report, *World Population 1979—Recent Demographic Estimates for the Countries and Regions of the World,* ISP-WP-79, are available for $9.00 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, or any U.S. Department of Commerce District Office. Also available are a summary version (*World Population 1979—Summary*, ISP-WP-79(B), for $2.00) containing textual materials and summary data without source notes; and a 17″×22″ wall chart (*World Population Statistics in Brief: 1979*, ISP-WP-79(C), for $1.25). (ELLEN JAMISON, INTERNATIONAL DEMOGRAPHIC DATA CENTER, BUREAU OF THE CENSUS, Washington, D.C. 20233, telephone (301) 763-2870)

REFLECTIONS OF AMERICA

To celebrate the 100th anniversary of the *Statistical Abstract of the United States,* the Census Bureau has published a broad-ranging collection of essays by well-known authors—all recognized experts in their fields. They were asked to consider various aspects of U.S. life with one question in mind:

What do statistics tell us about our society that can be described and decided in no other way? The result is a multidimensional examination that covers the American social, economic, and cultural scene, as the following list of topics and authors will indicate.

Agriculture	Sylvan H. Wittwer
Arts	Charles D. Champlin
Attitudes	Ben J. Wattenberg and David Gergen
Business	Alexander B. Trowbridge, Jr.
Cities	William Marlin
Classes	Eric F. Goldman
Communications	Ben H. Bagdikian
Conservation	Marion Clawson
Crime	Albert J. Heiss, Jr.
Economy	John Kenneth Galbraith, Walter W. Heller
Education	Roger W. Heyns
Employment and Income	Andrew F. Brimmer
Health	René Dubos
Housing	George Sternlieb
International Relations	George W. Rathjens
International Trade	J. A. Livingston
Minorities	Howard E. Mitchell
Population	Philip M. Hauser
Poverty	Graciela Olivarez
Quality of Life	James A. Michener
Transportation	Isabel H. Benham
Voting	Richard E. Smolka
Women	Jeane J. Kirkpatrick

With a preface by the honorary editor, Norman Cousins, an introduction by Daniel Patrick Moynihan, and a concluding essay entitled "The Future Role of Information in American Life" by Vincent P. Barabba (the Census Bureau's Director from 1973 to 1976 and again from 1979 through 1980), the volume is illustrated with charts, tables, and photographs.

Reflections of America, Commemorating the Statistical Abstract, 212 pp., may be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, in paperback, GPO Stock No. 003-024-02921-9, at $6.50. (FREDERICK G. BOHME, BUREAU OF THE CENSUS, DEPARTMENT OF COMMERCE, telephone (301) 449-1625)

1980 NATIONAL HOUSING PRODUCTION REPORT

The 1980 National Housing Production Report consists of a narrative and four appendices. The narrative contains a description of the state of the housing inventory in 1977, the characteristics of housing production and marketing in 1978 and 1979, and a discussion of anticipated developments in 1980. The narrative also has sections detailing trends in rental housing and in tenure preference and housing structure type.

The appendices to the report provide much more detail on various aspects of housing production and the stock of housing. Appendix A includes discussions of Federal aids to housing, including tax incentives and housing credit assistance in calendar years 1978 and 1979, and cash subsidy programs in fiscal years 1978 through 1981, with 1980 and 1981 estimated. Appendix B has material on the preservation of existing housing and neighborhoods, with analyses of changes in the condition of housing and neighborhoods; on expenditures for housing maintenance and repair and construction improvements; and on Federal programs for housing, community development, and related research which contribute to the conservation and preservation of the Nation's housing stock and residential neighborhoods. Appendix C covers the nonfinancial resources (labor, materials, and land) required for housing production. Appendix D provides data on the availability of funds for housing in 1976 through 1979 and presents an assessment of the availability of mortgage funds for housing in 1980.

Copies are available free of charge while the supply lasts from HUD USER, P.O. Box 280, Germantown, Md. 20767. (DUANE MCGOUGH, OFFICE OF POLICY DEVELOPMENT AND RESEARCH, DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT, telephone (202) 251-5154)

PUBLIC ASSISTANCE RECIPIENTS AND CASH PAYMENTS

The Social Security Administration's Office of Research and Statistics has released the February 1980 edition of *Public Assistance Recipients and Cash Payments by State and County.*

A compilation of detailed statistical tables, the 85-page report covers the number of recipients and amounts of payments in February 1980 under the programs of Aid to Families with Dependent Children and general assistance. These data are also available on computer magnetic tapes to persons who need them in machine-readable format.

Single copies of *Public Assistance Recipients and Cash Payments by State and County* (SSA Publication No. 13-11921) are available from the Publications Staff, Office of Research and Statistics, Social Security Administration, Room 1120, Universal North Building, 1875 Connecticut Avenue, N.W., Washington, D.C. 20009. (ROBERT E. ROBINSON, SOCIAL SECURITY ADMINISTRATION, DEPARTMENT OF HEALTH AND HUMAN SERVICES, telephone (202) 673-5209)

1977 AFDC SURVEY

The Social Security Administration's Office of Research and Statistics has released the second part of its two-part *1977 Recipient Characteristics Study* of Aid to Families with Dependent Children (AFDC).

The report, *Part II: Financial Circumstances of AFDC Families,* charts changes since 1975 in the kinds and amounts of AFDC-family incomes, including food stamps. Accompanying the analysis are more than 40 pages of detailed statistical tables, a glossary of AFDC terms, and a description of the survey's methodology.

Single copies of *Part II: Financial Circumstances of AFDC Families* (SSA Publication No. 13-11729), as well as of *Part I: Demographic and Program Statistics,* are available from the Publications Staff, Office of Research and Statistics, Social Security Administration, Room 1120, Universal North Building, 1875 Connecticut Avenue, N.W., Washington, D.C. 20009. (ROBERT E. ROBINSON, SOCIAL SECURITY ADMINISTRATION, DEPARTMENT OF HEALTH AND HUMAN SERVICES, telephone (202) 673-5209)

WORK DISABILITY CHARTS

The Social Security Administration's Office of Research and Statistics has released its latest edition of *Work Disability in the United States: A Chartbook.*

The book's 18 charts summarize the findings of the Social Security Administration's 1978 survey of the disabled—their demographic, physical, and financial characteristics. The survey sampled 12,000 persons from the civilian noninstitutionalized population aged 18 to 64, of whom, on a weighted basis, over 21 million reported some limitation in their ability to work.

Single copies of *Work Disability in the United States* (SSA Publication No. 13-11978) are available from the Publications Staff, Office of Research and Statistics, Social Security Administration, Room 1120, Universal North Building, 1875 Connecticut Avenue, N.W., Washington, D.C. 20009. (ROBERT E. ROBINSON, SOCIAL SECURITY ADMINISTRATION, DEPARTMENT OF HEALTH AND HUMAN SERVICES, telephone (202) 673-5209)

NEW SSA TECHNICAL NOTE SERIES

The Office of Research and Statistics of the Social Security Administration has recently released two reports in a new publication series devoted to methodological and statistical technique.

The *ORS Technical Note Series* is directed to those primarily interested in the statistical methodology employed in the analysis of social security program data and data developed from special population surveys.

Report No. 1, "Differences in Earnings Inequality in Large Metropolitan Areas, 1974," presents sample estimates of Gini indexes of inequality for 1974 earnings for the 125 most populous Standard Metropolitan Statistical Areas. Record files from the Social Security Administration are the data source, hence the limitation to earnings in employment covered by its old-age, survivors, and disability insurance program. Of note is the finding that the data do not support a hypothesized inverse relationship between inequality and population size.

Report No. 2, "Updating Earnings Information on SSA's Annual Statistical Files," describes the updating of earnings information beyond the cutoff date for statistical processing. The updating reflects corrections, adjustments, late reporting, and reinstatements of earnings items that were previously withdrawn from processing because of faulty name or incorrect identification of social security number. This note quantifies the effects of such updating activities for three groups of workers in an attempt to help users of SSA's annual files determine the limitations of these data.

Requests for single copies in the *ORS Technical Note Series* or for inclusion on the regular distribution for future releases can be sent to the Publications Staff, Office of Research and Statistics, Social Security Administration, Room 1120, University

North Building, 1875 Connecticut Avenue, N.W., Washington, D.C. 20009. (ROBERT E. ROBINSON, SOCIAL SECURITY ADMINISTRATION, DEPARTMENT OF HEALTH AND HUMAN SERVICES, telephone (202) 673-5209)

SOCIAL SECURITY BENEFICIARIES BY ZIP CODE

The Office of Research and Statistics of the Social Security Administration recently released 10 volumes of revised data on *Social Security Beneficiaries by Zip Code* as of June 1979. These volumes present benefit data for small population areas by ZIP codes within the States for each region, and are designed for use by Government agencies and others in need of localized program information.

The data show the number of old-age, survivors, and disability (OASDI) beneficiaries on the rolls; the number of adult beneficiaries by race and sex; the number receiving child benefits; and the number of persons with federally administered supplemental security income payments. The figures include those whose benefits were in suspension status mostly for excess earnings.

For the five southwestern States—Arizona, California, Colorado, New Mexico, and Texas—additional benefit data for OASDI beneficiaries with Spanish surnames are shown.

Data for specific areas in *Social Security Beneficiaries by ZIP Code* (SSA Publication No. 13-11941) may be obtained upon request to the Claims and Benefit Statistics Branch, Social Security Administration, Room 2-G-1, Meadows East Building, 6300 Security Boulevard, Baltimore, Maryland 21235. (PHILIP R. LERNER, SOCIAL SECURITY ADMINISTRATION, DEPARTMENT OF HEALTH AND HUMAN SERVICES, telephone (301) 594-0387 or FTS 934-0387)

RECENT SOCIAL SECURITY BULLETIN REPORTS

The Social Security Administration, Department of Health and Human Services has recently released the following *Social Security Bulletin* reports which are briefly described:

Price and Income Changes for the Elderly (Social Security Bulletin, January 1981).—This article presents some descriptive data for examining the validity of the argument that inflation is harmful to the elderly. Two frequent arguments in support of this belief are that some important income sources for the elderly are less than fully indexed to inflation and that the elderly spend heavily on goods and services whose prices rise faster than the average inflation rate. The first part of the article evaluates the question of whether an economy-wide consumer price index is an adequate measure of the cost of living for the elderly population. The second part of the article focuses on changes in average real incomes of the elderly over the 1970–77 period.

Assets of the Elderly as They Retire (Social Security Bulletin, January 1981).—This study, using data from the Retirement History Study, indicates that as older Americans enter their retirement years, their property wealth is generally very limited and can seldom be expected to be much help in maintaining their preretirement standard of living. Although most older Americans own some form of assets, the value of these assets is generally quite small. Equity in the home is usually the most important form of asset for the elderly; liquid or income-producing assets are generally very limited in amount. Only a small proportion of respondents have substantial asset wealth. Married men are much more likely to own homes than nonmarried men and women, and are also more likely to own liquid assets of any magnitude. (ROBERT E. ROBINSON, SOCIAL SECURITY ADMINISTRATION, DEPARTMENT OF HEALTH AND HUMAN SERVICES, telephone (202) 673-5209)

RECENT NSF REPORTS

The National Science Foundation (NSF) has recently released a new report, *Occupational Mobility of Scientists and Engineers* (NSF 80-317). Significant changes have occurred in the employment patterns of various scientific and technical occupations over the past two decades. Rates of change differed among fields as well as between employing sectors of the economy in which scientists and engineers play significant roles. Such events have frequently produced dramatic changes in labor market conditions for scientists and engineers. This report examines one important mechanism of labor market adjustment—occupational mobility. Although industrial, geographic, and job mobility are important aspects of this phenomenon, the report fo-

cuses on movement into, out of, and between science and engineering occupations.

Copies of the report are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 for $1.75 per copy, stock number 038-000-00466-2.

Another new report is entitled *Employment Patterns of Academic Scientists and Engineers, 1973–78* (NSF 80-314). Academic science is the product of many factors; consequently, explanation of the behavior of the academic science system is not simple and the apparent relationship of factors may, at first glance, be baffling. One such case is the main topic of this report; namely, the continued increase in the number of academically employed scientists and engineers in the face of financial constraints. The analyses presented are based on data from NSF's academic science surveys and extensive interviews of university officials at 23 institutions.

Most of the statistical analysis contained in this report is based on special tabulations of data on employment of scientists and engineers, R&D expenditures, graduate science student enrollment, and utilization of postdoctorates in 271 institutions granting the doctoral degree. Because data in this report are limited to matched comparisons in these institutions, they do not agree with statistics contained in other NSF reports covering various characteristics of academic science in all universities and colleges.

Copies of the report are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 for $1.75 per copy, stock number 038-000-00462-0.

Also issued is *Science Resources Studies Highlights,* "Federal R&D Obligations Will Show Real Growth in 1981—Mostly from DOD Programs" (NSF 80-322) which summarizes findings from the *Federal Funds for Research and Development, Fiscal Years 1979, 1980, and 1981,* Volume XXIX survey, conducted in the second quarter of fiscal year 1980, following the President's January budget message for 1981 and the subsequent March revisions. The data are actual for 1979 but reflect estimates, including rescissions proposed by the administration for 1980, and requested amounts, including proposed budget amendments, for 1981. Federal R&D obligations are shown by character of work, field of science, and performer. The 1981 program changes are given by agency.

Copies of the *Highlights* are available from the Division of Science Resources Studies, National Science Foundation, 1800 G Street, N.W., Washington, D.C. 20550.

The following *Detailed Statistical Tables* have been released:

Academic Science: Graduate Enrollment and Support, Fall 1979 (NSF 80-321)
Characteristics of Doctoral Scientists and Engineers in the United States, 1979 (NSF 80-323)
Scientists and Engineers from Abroad, 1976–78 (NSF 80-324)

Copies of these tables are available from the Division of Science Resources Studies, National Science Foundation, 1800 G Street, N.W., Washington, D.C. 20550. (CHARLES E. FALK, DIVISION OF SCIENCE RESOURCES STUDIES, NATIONAL SCIENCE FOUNDATION (202) 634-4622)

FIRST SESSION OF THE SUBCOMMITTEE ON HOUSEHOLD SURVEYS OF COINS

The Subcommittee on Household Surveys of the Committee on Improvement of National Statistics (COINS) of the Inter-American Statistical Institute (IASI) held its first session in Washington, D.C., during the period September 16–23, 1980. This is a Subcommittee of experts from seven countries: Mrs. Carmen P. McFarlane (Jamaica) who chaired the meeting; Lic. Clara J. de Bialostozky (Mexico); Lic. Eladio Cordero Díaz (Costa Rica); Miss María Elena González (United States); Mr. Amaro da Costa Monteiro (Brazil); Mr. Béla Prigly (Canada); and Dra. Carmen Medina de Quintero (Venezuela).

Also participating in the session were observers from the national statistical offices of Guatemala, Honduras, Mexico, Panama and the United States, as well as from the following international agencies: Organization of American States, United Nations Statistical Office, United Nations Statistical Commission for Latin America (ECLA), Inter-American Development Bank, Inter-American Institute of Agricultural Sciences, Pan American Health Organization, Secretaría Permanente del Tratado General de Integración Económica Centroamericana (SIECA), and the World Bank.

The Subcommittee formulated a set of recommendations for the establishment and implementation of the Inter-American Household Survey Program (PIDEH),* in compliance with a recommendation from the VII Inter-American Statistical Conference (Santo Domingo, 1977), and with the mandate from the XIV Session of COINS (Caracas, 1979). The principal technical document for the deliberations of the Subcommittee was prepared by Mr. Benjamin Gura, Technical Coordinator of the project for the IASI Secretariat, and is entitled "Bases for Consideration of an Inter-American Household Survey Program (PIDEH)." This document took into account the findings resulting from consultations with the American countries on the project, and covered the different program design aspects of PIDEH: Topics, structure, framework, pilot surveys, concepts and definitions, questionnaires and related technical materials, data processing, data dissemination, data use and analysis, and technical and monetary support.

Other documents provided to the Subcommittee were: (a) "Summary of Results of Consultations During 1980 with Countries in the American Region Concerning the Inter-American Household Survey Program," also prepared by Mr. Gura; (b) "Encuestas de Hogares Realizadas en la Región Americana (Versión actualizada, Julio 1980)," prepared by Ing. Raúl Conde, of the Planning and Statistics Program of the General Secretariat of the Organization of American States (OAS); this document contains brief information on the household surveys conducted in the countries of the American region, and is available in Spanish only; and (c) a document containing a list of the national personnel who has main technical responsibility in household survey activities.

The report of the first session of the Subcommittee will be submitted to COINS, at its XV session, which should be held in the second half of 1981.

The Inter-American Statistical Institute has received a grant from the Agency for International Development (AID) of the United States Government for the design phase of PIDEH. The second session of the Subcommittee on Household Surveys has been scheduled to be held in Washington, in the Spring of 1981. (MARIA E. GONZALEZ, OFFICE OF FEDERAL STATISTICAL POLICY AND STANDARDS, DEPARTMENT OF COMMERCE, telephone (202) 673-7953)

March 1981

UNITED NATIONS STATISTICAL OFFICE
PUBLICATIONS RECENTLY ISSUED

The following briefly describes recent publications issued by the Statistical Office of the United Nations. Copies of these documents may be purchased from the Sales Section, United Nations, New York, New York 10017. When ordering, please use the price and stock number included in the description. Government agencies should request the discount to which they are entitled, as it is not automatically given.

Yearbook of International Trade Statistics, 1979 (Vol. I, *Trade by Country,* Statistical Papers, Series G, No. 28, 1,187 pp.; Vol. II, *Trade by Commodity; Commodity Matrix Tables,* Statistical Papers, Series G, No. 28, Add. 1; 1,196 pp.; UN Sales No. E/F.80.XVII.5, Vols. I and II, $70.00, not sold separately).—This is the twenty-eighth issue in this series. The yearbook provides the basic information for individual countries' external trade performance in terms of overall trends in current value as well as in volume and price, the importance of trading partners and the significance of individual commodities imported and exported.

Volume I, Trade by Country, contains detailed chapters for 163 individual countries or areas, covering 90 percent of world merchandise, and basic summary tables. Country chapters show, for the latest years available between 1970 and 1979, historical series of imports, exports, conversion rates and index numbers: analysis of imports by broad economic categories and of exports by industrial origin; the direction of trade; imports and exports analysed by commodities.

The summary tables show world trade by regions and countries or areas; world trade by commodity classes and regions; index numbers by commodity classes; exports of market economies (current values, unit value and quantum indexes, and analytical data between developed and developing areas); index numbers by regions (quantum, unit value and terms of trade); trends in world trade; world trade (index numbers by countries); average annual rate of growth by commodity classes and by regions; structure of world trade by

*PIDEH is the acronym in Spanish for Inter-American Household Survey Program (Programa Interamericano de Encuestas de Hogares).

commodity classes and economic regions—per cent shares; external trade indicators and export structure of developing countries by commodities and by partner countries.

Volume II, Trade by Commodity; Commodity Matrix Tables contains commodity tables showing the total economic world trade of 468 commodities analyzed by regions and countries for the years 1975 to 1979 and 175 commodity matrix tables for the years 1978 and 1979.

Special tables provide data on prices of important commodities traded internationally and also their associate indexes for the period 1971–1979.

The analysis by commodity of imports and exports is according to the Standard International Trade Classification, Revised (SITC, Revised).

Data are stored on magnetic tapes in the form of the statistical tables appearing in the *Yearbook*. However, the information on tape in a much more detailed form is available on request. Country statistics are also available on microfiches.

United Nations Statistical Pocketbook (World Statistics in Brief) (Statistical Papers, Series V, No. 5, 122 pp., UN Sales No. E.81.XVIII.11., $2.50).—This is the fifth in a series of annual compilations of basic international statistics. The compilation was undertaken in response to United Nations General Assembly resolution 2626 (XXV), in which the Secretary-General was requested, *inter alia*, to supply adequate basic data that would increase international public awareness of national development efforts. It is expected that the *Pocketbook* can disseminate, in compact form (the size of the fifth edition has been reduced to 3¼" × 6" (8cm × 15cm) and the number of pages has been greatly reduced), important basic facts. It should be of special interest to students, the business world and the general public.

The data were selected from the wealth of international statistical information compiled regularly by the Statistical Office of the United Nations, the statistical services of the specialized agencies and other international organizations. Part of the *Pocketbook* (white pages) presents information on each of 155 countries, showing important and frequently consulted statistical indicators. Another part (blue pages) contains demographic, economic and social statistics for the world as a whole and for continents.

The *Pocketbook* generally covers the years 1970 and 1979 (or, in some cases, 1978). The statistics included for each year are those most recently compiled and published by the United Nations and the specialized agencies. The aim is to present, over the period covered, time series that are as nearly comparable as the available statistics permit.

PERSONNEL NOTES

DEPARTMENT OF COMMERCE

Bureau of Economic Analysis: PAULA C. YOUNG was designated Chief of the Interindustry Economics Division.

FEDERAL RESERVE BOARD

GREGORY ELLIEHAUSEN, Ph.D. candidate at Penn State U., joined the Board as an Economist in the Financial Structure Section.

ERNESTINE COSBY joined the Board as an Economic Systems Analyst in the Statistical Management and Control Section.

Retirements

DEPARTMENT OF COMMERCE

Bureau of the Census: PETER M. CAVAS has retired after 30 years of Government service. Immediately prior to his retirement, he was working with the Office of Federal Statistical Policy and Standards on the Decision Information Display System.

Office of Federal Statistical Policy and *Standards:* CURTIS L. FRITZ, Project manager for the Decision Information Display System, has retired after 21 years of Government Service.

SCHEDULE OF RELEASE DATES FOR PRINCIPAL FEDERAL ECONOMIC INDICATORS

April 1981

Release dates scheduled by agencies responsible for the principal economic indicators of the Federal Government are given below. *These are target dates* that will be met in the majority of cases. *Occasionally agencies may be able to release dates a day or so earlier or may be forced by unavoidable compilation problems to release a report one or more days later.* In certain cases,* timing variability in the receipt of raw data requires a range of dates rather than a specific release date.

A similar schedule will be shown here each month covering release dates for the following month. The indicators are identified by the title of the releases in which they are included; the source agency; and the release identification number where applicable. Release date information for additional series can be found in publications of the sponsoring agencies.

(Any inquiries about these series should be directed to the issuing agency.)

Date		*Subject*	*Data for*
April	1	Construction Expenditures (Press release), Census, C-30	February
	2	Selected Interest Rates, Federal Reserve Board (FRB), G.13	March
	3	Factors Affecting Reserves of Depository Institutions, FRB, H.4.1	Week Ending April 1
	3	Weekly Consolidated Condition Report of Large Commercial Banks and Domestic Subsidiaries, FRB, H.4.2	Week Ending March 25
	3	Money Stock Measures, FRB, H.6	Week Ending March 25
	3	The Employment Situation (Press release), Bureau of Labor Statistics (BLS)	March
	3	Producer Price Indexes (Press release), BLS	March
	6	Manufacturers' Export Sales and Orders, Census, M4-A	February
	6	Monthly Wholesale Trade (Press release), Census, BW	February
	*6-7	Consumer Installment Credit, FRB, G.19	February
	7	Monthly Selected Services Receipts (Press release), Census	February
	9	Crop Production, Agriculture	April 1

Date		*Subject*	*Data for*
April	10	Factors Affecting Reserves of Depository Institutions, FRB, H.4.1	Week Ending April 8
	10	Weekly Consolidated Condition Report of Large Commercial Banks and Domestic Subsidiaries, FRB, H.4.2	Week Ending April 1
	10	Money Stock Measures, FRB, H.6	Week Ending April 1
	10	Manufacturing and Trade: Inventories and Sales, Census	February
	10	Supply/Demand Estimates, Agriculture	Current Marketing Season
	13	Advance Monthly Retail Sales (Press release) Census	March
	15	Yields on FHA Insured New Home 30-Year Mortgages, HUD	April 1
	15	Industrial Production, FRB, G.12.3	March
	16	Housing Starts (Press release), Census, C-20	March
	16	Capacity Utilization: Manufacturing and Materials, FRB, G.3	March
	17	Factors Affecting Reserves of Depository Institutions, FRB, H.4.1	Week Ending April 15
	17	Weekly Consolidated Condition Report of Large Commercial Banks and Domestic Subsidiaries, FRB, H.4.2	Week Ending April 8
	17	Money Stock Measures, FRB, H.6	Week Ending April 8
	17	Personal Income and Outlays, Bureau of Economic Analysis (BEA)	March
	20	Gross National Product (Preliminary), BEA	1Q'81
	20	Corporate Profits (Revised), BEA	4Q'80
	20	Cattle on Feed, Agriculture	April 1
	21	Advance Report on Durable Goods, Manufacturers' Shipments and Orders (Press Release), Census, M3-1	March
	23	Consumer Price Index (Press release), BLS	March
	23	Real Earnings (Press release), BLS	March
	23	Treasury Statement (the monthly "budget"), Treasury	March
	23	Grain Stocks Report, Agriculture	April 1
	24	Supply/Demand Estimates, Agriculture	Current Marketing Season
	24	Factors Affecting Reserves of Depository Institutions, FRB, H.4.1	Week Ending April 22
	24	Weekly Consolidated Condition Report of Large Commercial Banks and Domestic Subsidiaries, FRB, H.4.2	Week Ending April 15

Date		Subject	Data for
April	24	Money Stock Measure, FRB, H.6	Week Ending April 15
	27	Major Collective Bargaining Settlements, BLS	1Q'81
	27	Productivity and Costs in Private Business, Nonfarm Business, and Manufacturing Sectors (Press release), BLS	1Q'81
	27	Employment Cost Index (Press release), BLS	1Q'81
	28	Export and Import Merchandise Trade, Census, FT-900	March
	28	Housing Vacancies, Census, H-111	1Q'81
	29	Labor Turnover in Manufacturing (Press release), BLS	March
	29	Work Stoppages (Press release), BLS	March
	29	Sales, Inventories of Single-Family Homes, Census, C-25	March
	29	Composite Indexes of Leading, Coincident, and Lagging Indicators, BEA	March
	*28-30	Savings and Loan Association Activity (Press release), FHLBB	March
	30	Manufacturers' Shipments, Inventories, and Orders, Census, M3-1	March
	30	Price Index of New Single-Family Homes, Census, C-27	1Q'81
	30	Agricultural Prices, Agriculture	Mid-April

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